MIS920901

STANDARDS DEVELOPMENT BRANCH OMOE
3 6936 00000 1871

STOPPING WATER POLLUTION AT ITS SOURCE

MISA

Municipal/Industrial Strategy for Abatement

TWELVE-MONTH MONITORING DATA REPORT

ORGANIC CHEMICAL

MANUFACTURING SECTOR

Environment
Environnement

ario

MOE
STANDARDS DEVELOPMENT BRANCH
LIBRARY

TD
423
.T87
T84
1992

Twelve-month monitoring data report : organic chemical manufacturing sector / Tuszynski, T. M.

22454

22454

ISBN 0-7778-0032-2

TWELVE-MONTH MONITORING DATA REPORT ORGANIC CHEMICAL MANUFACTURING SECTOR

(Period Covered: October 1, 1989 to July 31, 1991)

Report prepared by:

T.M. Tuszynski, Ph.D., P.Eng

MISA Section
Water Resources Branch
Ontario Ministry of the Environment

SEPTEMBER 1992

Cette publication technique
n'est disponible qu'en anglais.

Copyright: Queen's Printer for Ontario, 1992
This publication may be reproduced for non-commercial purposes
with appropriate attribution.

PIBS 2112
Log 92-2310-046

Copyright Provisions and Restrictions on Copying:

This Ontario Ministry of the Environment work is protected by Crown copyright (unless otherwise indicated), which is held by the Queen's Printer for Ontario. It may be reproduced for non-commercial purposes if credit is given and Crown copyright is acknowledged.

It may not be reproduced, in all or in part, part, for any commercial purpose except under a licence from the Queen's Printer for Ontario.

For information on reproducing Government of Ontario works, please contact Service Ontario Publications at copyright@ontario.ca

ENTERED OCT 16 2000

MOE
STANDARDS DEVELOPMENT BRANCH
LIBRARY

TABLE OF CONTENTS

PAGE

ACKNOWLEDGEMENT 1

EXECUTIVE SUMMARY 2

I INTRODUCTION 5

II BACKGROUND
- GENERAL 7
- MONITORING REQUIREMENTS 8
- THE OCM SECTOR 9

III DATABASE DESCRIPTION
- REPORTING 9
- VALIDATION 9
- TREATMENT OF REMARK-CODED DATA 10
- SIZE 10
- QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) 10

IV DISCUSSION OF RESULTS
- DATA INTERPRETATION 11
- DATA TABLES 12
- ACUTE LETHALITY 14
- CONTAMINANTS FOUND 15
- PLANT EFFLUENT FLOWS 16
- DISCHARGES OF CONVENTIONAL CONTAMINANTS 17
- DISCHARGES OF EMPPL CONTAMINANTS 18
- DISCHARGES OF PCDDs AND PCDFs 19
- ONCE-THROUGH COOLING WATER DISCHARGES 21
- STORM WATER DISCHARGES 21
- EMERGENCY OVERFLOW DISCHARGES 22
- PLANT-MINISTRY DATA COMPARISON 22
- TOTAL SECTOR LOADINGS 23

V REFERENCES 24

LIST OF TABLES
- Table 1 OCM Sector Overview 25
- Table 2 Matrix of Contaminants Found 28
- Table 3 The Top Seven OCM Sector Dischargers of Conventional Contaminants 32
- Table 4 The Top Six OCM Sector Dischargers of EMPPL Contaminants 33
- Table 5 Summary of Effluents with Found PCDDs/PCDFs 34
- Table 6 Total Loadings of Found Parameters for the OCM Sector ... 35

ENTERED OCT 16 2000

PAGE

VI APPENDICES 38

APPENDIX A A-1
EXPLANATORY NOTES

APPENDIX B B-1
SITE FLOWS

APPENDIX C C-1
PLOTS OF TWELVE-MONTH AVERAGE SITE LOADINGS
- ELEVEN PARAMETERS - FIG C-1 to C-11

APPENDIX D D-1
PLOTS OF MONTHLY AVERAGE SITE LOADINGS
- THREE PARAMETERS - FIG D-1 to D-3

APPENDIX E E-1
TWELVE-MONTH AVERAGE CONCENTRATION/
FLOW/LOAD TABLES

APPENDIX F F-1
STORM WATER EFFLUENT MONITORING SUMMARY

APPENDIX G G-1
EMERGENCY OVERFLOW EFFLUENT
MONITORING SUMMARY

APPENDIX H H-1
PLANT-MINISTRY MONITORING DATA
COMPARISON TABLES

APPENDIX I I-1
PLANT-MINISTRY PCDD/PCDF DATA
COMPARISON TABLES

EXECUTIVE SUMMARY

This report presents, in tabular and graphical form, the results of twelve months of monitoring of intake and effluent streams by twenty-six Organic Chemical Manufacturing (OCM) Sector plants within the period of October 1, 1989 to July 31, 1991. Also presented is Ministry inspection monitoring data for the period from October 1, 1989 to December 31, 1991 for comparison with the industry supplied data.

The twelve months of monitoring was a requirement of Ontario Regulation 209/89 and its three amendments, under the Ontario Ministry of the Environment Municipal-Industrial Strategy for Abatement (MISA) initiative.

The purpose of the monitoring phase of the MISA program was to establish a database on loadings of contaminants from direct dischargers and to provide data for the selection of parameters for technology-based limits under the MISA limits phase. Technology-based options were to include chemical substitution, source control, recycle, reuse and in-plant or end-of-pipe treatment.

The plant-reported twelve-month effluent data have been edited so that only **"found"** (see Appendix A) parameters are presented in this report. The twelve-month database includes the six-month monitoring results, previously published in the Ministry publication entitled, "Six-Month Monitoring Data Report - Organic Chemical Manufacturing Sector", Feb. 1992.

The data are presented as twelve-month average concentrations and loadings for each control point and as twelve-month average total plant loadings in LOTUS Table format for each of the twenty-six OCM Sector plants.

Plots of typical monitoring results, in the form of twelve-month average and individual monthly average intake and effluent loadings for selected contaminants are shown in two Appendices.

To support the interpretation of the data, explanatory notes are provided in Appendix A. The notes include clarification of data treatment and calculation procedures, definitions of selected terms, a key to abbreviations and four reference tables showing Regulation Method Detection Limit (RMDL) values, parameter environmental fate categorization, Provincial Water Quality Objectives and Guidelines (PWQO/Gs) and data qualifying remark codes. Comparison of the monitoring results to the PWQO/Gs may impart some meaningfulness to the data but it does not imply necessary compliance.

This report presents for the first time, twelve months of stormwater monitoring and emergency overflow effluent data for the sector plants. It also provides a comparison between the results of Ministry inspection sampling and the industry supplied data.

A total of one hundred effluent streams were monitored including seventy-four final discharges and twenty-six contributory internal effluent streams.

Of the one hundred and fifty-five parameters specified for monitoring, one hundred and sixteen were "found" in one or more of the Sector effluents. In the case of three plants, a number of related parameters were classified as "found" because matrix interference caused the laboratory method detection levels to exceed RMDL values.

Individual site "found" parameter totals ranged from seventy-seven parameters at the Dow Chemical Canada Inc. Sarnia plant to five parameters at Akzo Chemicals Ltd. In some cases, parameters found in the effluents were also found in the intake water at comparable concentrations.

Seven parameters or groups, of the one hundred and sixteen found, are on the Ministry candidate substances list for bans or phase-outs.

A matrix of the contaminants found in Sector plant effluents (Table 2) is provided for quick identification of specific contaminants at each plant site. The environmental fate category, as to persistence and bioaccumulation, for each of the found parameters is also listed.

The largest dischargers of conventional and Effluent Monitoring Priority Pollutants List (EMPPL) contaminants within the OCM Sector were the following five plants:

- Courtaulds Fibres Canada
- Dow Chemical Canada Inc
- Dupont Canada Inc - Maitland Site
- Ethyl Canada Inc
- Polysar Ltd

For the twelve plants with storm water discharges, the yearly contribution of contaminant loadings from storm water was of the same order as the contribution of the same contaminants from process effluents in one day. Storm water control studies will be undertaken at the twelve sites because of the current semi-quantitative nature of the reported storm water data.

The reported emergency overflow discharges were very few and over the one year monitoring period did not contribute a significant loading to the environment.

Results of polychlorinated dibenzo-p-dioxin (PCDD) and dibenzofuran (PCDF) analyses are presented both in terms of individual congener concentrations and loadings and toxic equivalency to 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-T4CDD).

PCDDs and PCDFs were found in the final discharges to watercourses at the following plants:

- Chinook Group Ltd
- Cornwall Chemicals Ltd
- Dow Chemical Canada Inc
- Dupont Canada Inc - Corunna
- Uniroyal Chemical Ltd

The report discusses the probable sources of the PCDDs and PCDFs.

The concentration of PCDDs and PCDFs in the final discharges, expressed in terms of toxicity equivalency to 2,3,7,8-T4CDD, exceeded the Ontario Drinking Water Objective of 15 pg TEQ/L at two of the five sites:

- Chinook Group Ltd
- Dow Chemical Canada Inc

An examination of the Ministry inspection sampling and the industry supplied data indicates that there appears to be no systematic difference between the two data sets and that industry self-monitoring data, subject to quality assurance/quality control (QA/QC) verification, is valid.

To allow comparisons with other sectors, the total OCM Sector loadings to watercourses for the found contaminants are summarized in Table 6. The OCM Sector heterogeneity is clearly evident as, in general, for any given found contaminant there are only one to four dischargers which account for more than 90% of its loadings.

The results of regulatory acute lethality testing of plant discharges using rainbow trout and Daphnia magna are presented in a separate report. However, a summary of the findings is included in this report.

I INTRODUCTION

The Municipal-Industrial Strategy for Abatement (MISA) Program is a Ministry of the Environment regulatory initiative with the ultimate goal of virtual elimination of toxic contaminants from municipal and industrial discharges to Ontario's waterways.

Under the first phase of the program, effluent monitoring regulations were promulgated for nine industrial sectors requiring each to perform twelve months of intensive monitoring of its effluents. The Organic Chemical Manufacturing (OCM) Sector, as one of the nine industrial sectors, began its regulatory monitoring period on October 1, 1989.

This report presents in tabular and graphical form a summary of twelve months of effluent monitoring data, within the period from October 1, 1989 to July 31, 1991, submitted under the MISA regulatory program by twenty-six plants in the OCM Sector.

The present report extends the period of the monitoring database for the OCM Sector to twelve months from the six-month period first reported in the Ministry of the Environment Six-Month Report published in February 1992 (1). The present report also includes monitoring data for an additional six plants not included in the six-month report.

In conjunction with the regulatory requirements for each plant to monitor its effluents, Ministry of the Environment Operations Division staff conducted periodic plant inspections including sampling and analysis of selected plant effluents. The Ministry monitoring data for the period from October 1, 1989 to December 31, 1991 are compared to plant-reported data in separate tables.

Under the sector monitoring regulation, plants were also required to submit field quality assurance and quality control (QA/QC) data for travelling blanks, travelling spiked blanks and duplicates.

The QA/QC data has been analyzed to assess the suitability of corresponding effluent monitoring data for use in the limits setting process. The QA/QC data assessment is documented in a separate report (2).

The effluent data from the twelve-month regulatory monitoring period, subject to any QA/QC qualifications, will be used together with performance data obtained for the Best Available Technology Economically Achievable (BATEA) from the world-wide Best Available Technology (BAT) Study, to set effluent limits for the OCM Sector in the next phase of the MISA program. The BAT study was carried out for the Ministry by Science Applications International Corporation. The BAT Study report is currently being finalized.

Data in this report are presented under the plant names which are arranged in alphabetical order.

Specifically, this report presents tables showing:

- an overview of the OCM Sector plants - information on location, number of employees, raw materials, products and effluent treatment
- all of the contaminants found at each plant site
- specific plant discharge and intake loadings of conventional and EMPPL contaminants for selected plants
- a summary of PCDD and PCDF discharges
- total sector loadings for intake water and plant discharges

In separate appendices the report also provides:

- explanatory notes with a glossary of terms, criteria for listing of contaminants in the report tables; a listing of the 155 parameters monitored with their Regulation Method Detection Limit (RMDL) values; categorization of the parameters according to persistence and bioaccumulation; currently available PWQOs and PWQGs, and a list of remark codes used to qualify reported data
- graphical comparisons of twelve-month average flow data for all Sector plants and tabulated flow data for each regulated sampling point
- graphical comparisons of twelve-month and monthly average intake and plant effluent loadings for all Sector plants
- LOTUS 123 tables showing both twelve month average concentrations and loadings for each parameter found in each regulated plant effluent. Intake water data are presented alongside effluent data to provide a clearer picture of the actual contaminant contribution from each plant.
- LOTUS 123 tables summarizing storm water discharge monitoring data including estimated annual loadings of individual contaminants to watercourses
- LOTUS 123 tables highlighting emergency overflow effluent data including frequency and duration of events
- LOTUS 123 tables comparing data from both industry monitoring and Ministry inspection sampling
- an in-depth comparison, in LOTUS 123 table format, of polychlorinated dibenzo-p-dioxin (PCDD) and polychlorinated dibenzofuran (PCDF) data from both industry monitoring and Ministry inspection sampling

II BACKGROUND

GENERAL

The data summarized in this report were submitted under the MISA program as a regulatory requirement for the OCM Sector under a generic "how to" regulation for all the sectors - Ontario Regulation 695/88 and its amendment - Ontario Regulation 533/89 and a sector-specific regulation - O. Regulation 209/89 and its three amendments - Ontario Regulations 532/89, 45/90 and 416/90.

The sector-specific regulations covered twelve months of monitoring over the periods shown for the following number of plants:

- twenty-two plants - October 1, 1989 to September 30, 1990
- five plants - February 1, 1990 to January 31, 1991
- one plant - August 1, 1990 to July 31, 1991.

The six plants added to the OCM Sector after the commencement of regulatory monitoring by the initial group of plants, because of delays in confirming their direct discharger status, included:

- Amoco Canada Resources Ltd. (Sarnia)
- BASF Canada (Arnprior)
- Dupont Canada Inc. (Whitby)
- Guardsman Products Ltd. (Cornwall)
- Morbern Inc. (Cornwall)
- Rohm and Haas (Scarborough)

Since the twelve-month regulatory monitoring period did not end until July 31, 1991 for the last plant added to the Sector, the industrial monitoring data in this report, consisting of twelve-month monitoring periods for each site, span a period of twenty-two months from October 1, 1989 to July 31, 1991.

Because two plants were shutdown in the 1989-90 period for business reasons unrelated to the MISA program, the data reported cover twenty-six plants.

To utilize as much of the inspection sampling data obtained by the Ministry Operations Division staff as possible, the cut-off date for including Ministry results in this report was extended to December 31, 1991. In this way as much as possible of the Ministry data was incorporated for comparison purposes and it was relatively current as well. This was especially useful, in several cases, to clarify some uncertainties as to the presence or absence of PCDDs and PCDFs.

MONITORING REQUIREMENTS

The MISA OCM Monitoring Regulations, through site-specific schedules required twelve months of intensive monitoring for specified parameters at daily, weekly, thrice-weekly, monthly, quarterly and semi-annual frequencies.

The development document for the effluent monitoring Regulation for the OCM Sector (3) provides the technical rationale for the selection of parameters and their monitoring frequencies for the twelve-months of intensive monitoring at each site.

The basic list of parameters for monitoring by the Sector - the OCM Sector Characterization List consisted of 155 parameters including 14 "conventional" parameters and 141 parameters taken from the 1987 Effluent Monitoring Priority Pollutants List (EMPPL) (4) and its 1988 Update (5). Of the 141 EMPPL parameters monitored, 87 are known to be either persistent or bioaccumulative or both. The OCM Sector Characterization List is shown in Table A-1, Appendix A.

Site-specific monitoring schedules in the OCM Monitoring Regulation set out the specific site effluents and the parameters for monitoring at daily, thrice weekly, weekly, monthly, quarterly, and semi-annual frequencies. The daily, thrice weekly, weekly and monthly monitoring consisted of a relatively short list of conventional and key EMPPL parameters.

To allow the calculation of effluent loadings, the Monitoring Regulation required flow measurement accuracy of $\pm 7\%$ for process effluents and $\pm 20\%$ for combined effluents and once-through cooling water.

Plants were also required to characterize their effluents for all of the parameters on the OCM Sector Characterization List at least semi-annually with most companies being required to do full-list quarterly monitoring. In addition, plants were required to perform open characterization of their effluents to identify and to determine the approximate quantities of any volatile and extractable organic contaminants using gas chromatography and mass spectrometry and to check for 70 specified metals using emission spectroscopy.

The open characterization data, from both industry and Ministry sampling is currently being reviewed. Any contaminants provisionally identified through open characterization, not currently on EMPPL, will be submitted for Ministry evaluation for placement on EMPPL.

At the end of the twelve-month intensive monitoring period, each plant was required to maintain an ongoing reduced level of monitoring for only the daily frequency parameters until the limits regulation comes into force. In addition plant sites are monitoring other parameters that are reported in the Ministry's industrial direct discharger report (6).

Monitoring of site intake water was not a regulatory requirement but was done by all but six of the plants. Intake water was generally monitored on a monthly basis by most sites for the same parameters that were being monitored under their effluent monitoring requirements. Intake water flows, when provided by plants, were estimates.

The monitoring regulation also required that each plant site test its final discharges for acute lethality using rainbow trout and Daphnia magna at a monthly frequency for process outfalls and quarterly for once-through cooling water (OTCW).

THE OCM SECTOR

The twenty-six OCM Sector direct discharger plants under the MISA program are located throughout the Great Lakes Basin. Ten of the plants are located along the St. Clair River with the others located along Lake Ontario between Scarborough and Kingston; along the St. Lawrence River between Brockville and Cornwall; along the Ottawa River; in the Niagara area; north of Orillia and at Elmira.

The plants manufacture a wide range of products including fibres (nylon, rayon, polyester and spandex), films (nylon and polyethylene), plastics (PVC, ABS, polyethylene, polystyrene, engineering resins), vinyl coated fabrics, synthetic rubbers, phenol-formaldehyde resins, chlorinated hydrocarbons, synthetic detergent bases, fabric softeners furniture stains, sealers and emulsions for coatings, paints and adhesives.

Table 1 provides specific information on each of the twenty-six plants covered by this report as they were operated during the monitoring period. The plants are listed in alphabetical order. Included is information on location, major receiving basin, number of employees, raw materials, products, effluent treatment and number of outfalls.

III DATABASE DESCRIPTION

REPORTING

Each plant site was required by regulation to report its monitoring data to the Regional Ministry Office within 60-90 days of sample collection using computer diskettes customized by the Ministry for each plant under the MISA Data Entry System (MIDES). The diskette data were checked for completeness prior to being transferred to the Ministry central computer Sample Information System (SIS).

VALIDATION

The standard procedure for validating data for the twelve-month report consisted of a series of iterations of data downloading from SIS, statistical report generation showing averages, statistical outliers and multiple entries, plant reviews of reports and error corrections.

Statistical outliers were included in the reported database because they could not be distinguished from potentially real values representative of normal operating conditions. Data with potential QA/QC concerns were also included. The QA/QC data for the twelve month regulatory period have been assessed in a separate report (2).

A majority of the sector plants purchased a statistical software package, entitled QDMS (Quick and Dirty MIDES Statistics), developed for the sector at the Wastewater Technology Centre, (Burlington, Ontario) to use in calculating statistical parameters for their own databases to confirm the Ministry reported calculations.

TREATMENT OF REMARK-CODED DATA

The MIDES program allowed each plant site to clarify or qualify each data entry with a remark code from a list of twenty-nine standard remark codes. Typical remark codes could highlight late data, no data, " less than" values, "attached report" explanations, analytical interferences, improper preservation, multi-phase samples and approximate values.

Table A-4, in Appendix A, lists a summary of the available remark codes.

As part of the data analysis for this report, a remark code table was generated showing the number of data points with each remark code for each one of the twenty-six plant sites. Follow-up discussions with plant sites resulted in data being rejected from the twelve-month report if coded with one of the nine remark codes shown on page A-4 in Appendix A. Data accompanied by any of the other remark codes were retained.

SIZE

Approximately 438,000 data points were downloaded from the Ministry SIS database for the twelve-month monitoring period including about 107,000 QA/QC and 19,000 Ministry Inspection data.

The database covered contaminant analysis and flow measurement for one hundred and twenty streams including fifty-eight final discharges, twenty-six contributory internal effluents, sixteen direct storm water effluents and twenty plant water intakes.

Approximately 2600 of the 438,000 data points, equivalent to 0.6% of the database, were rejected on the basis of the adopted remark code policy. Another 8000 data or about 1.8% of the database were coded as," N/A - no data will be reported", indicating plant sites had been unable to provide the data. Despite the "N/A" coding, it was found that about 10% of the fields had data values reported and therefore such values were used in the database.

QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

The regulation required that each plant site collect and analyze monthly and quarterly field QA/QC samples. The QA/QC set included a duplicate sample, a travelling blank sample and a travelling spiked blank sample.

The twelve-month QA/QC database was assessed separately. The results of that assessment including the potential impact on the use of the monitoring data for limit setting have been reported in a separate Ministry Report entitled, "Report on the Assessment of the Quality Assurance and Quality Control (QA/QC) Data (2). The report confirms that the OCM Sector monitoring data are acceptable for use in the development of effluent limits. Four tables in the Results section of the report identify respectively:

- parameters requiring discretion for limits use
- parameters identified as found on the basis of Laboratory Method Detection Limits (LMDLs) above Regulation Method Detection Limits (RMDLs)
- parameters with high laboratory blank corrections
- parameters with under-recoveries of travelling spiked blanks

In addition to field QA/QC requirements, several other measures were taken to ensure a high quality database. Analytical laboratories were required to submit evidence of being able to meet Ministry-specified detection limits for each of the parameters to be monitored (Regulation Method Detection Limits - RMDLs). Only regulation-specified analytical method principles could be used for parameter analysis.

Each of the laboratories performing analyses for the MISA program was required to adhere to standard good laboratory practices including regular checks of laboratory QA/QC. Adherence to the standards was verified by inspections of on-site and commercial laboratories by members of the Ministry Laboratory Services Branch.

Throughout the program, Operations Division MISA staff ensured compliance with the monitoring regulations. They inspected all of the plants during the monitoring period and carried out inspection sampling. The Ministry Laboratory Services Branch analyzed the inspection samples to verify the analytical data obtained by the Sector plants. Results of the Ministry inspection sampling are compared to industry-submitted data in Appendix G.

Pre-regulation inspections were made to ensure that plant sampling locations would provide representative samples and that sampling equipment to be used adhered to the requirements specified in the regulation.

IV DISCUSSION OF RESULTS

DATA INTERPRETATION

In order to make the large OCM Sector monitoring database manageable and understandable for the purposes of the Twelve-Month Report, basic statistical analyses were employed to produce a series of summary statistics including data counts, data value classification with respect to RMDLs, minima/maxima, monthly and twelve-month averages, standard deviations and percentile values.

For each plant effluent, parameters were classified as present **(found)** or absent on the basis of the **90/10 Edit Rule** (See Appendix A). With the exception of a core group of 12 conventional contaminants, only parameters classified as found, are presented in this report. Moreover, these found parameters are presented in terms of concentrations and daily loadings averaged over twelve months of monitoring.

Whenever the adjective "found" is used throughout this report, it refers to parameters that have been defined by the **90/10 Edit Rule** to be present.

For ease of reference, the different monitoring data segments have been segregated into nine stand-alone appendices which form part of this report.

An attempt has been made to make all tables and plots essentially self-explanatory by the liberal use of footnotes. Shading of columns and/or rows in the tables has been used for visual impact and to highlight particular data or characteristics. Thus, all intake water data are shaded to allow for easy differentiation from effluent data. Shading is also used to denote found contaminants (Table 2 and Appendix I), environmental fate classification (Table A-2) and some suspect data in Appendix E for three plants for which analytical difficulties were reported.

In the case of the PCDD/PCDF tables in Appendix I, where summary data is provided for all industry reported PCDD/PCDF results, shading has been used to highlight PCDDs and PCDFs classified as found according to the 90/10 edit rule.

Found parameters only are listed or plotted in this report except for the PCDD and PCDF tables in Appendix I where summary data are presented for all of the congeners that were monitored at each control point.

Appendix A provides explanatory notes covering terminology, definitions, abbreviations, data treatment and major underlying assumptions to assist the reader in interpreting the reported data. Reference tables providing background information are also provided.

Tables A-1 to A-4 in Appendix A provide respectively, a listing of the Regulation Method Detection Limits for all of the 155 parameters on the OCM Sector Monitoring List, environmental fate classification of the parameters, the available Provincial Water Quality Objectives and Guidelines(PWQO/Gs) and the list of remark codes used to qualify reported data.

The information provided in the tables in Appendix A should allow the reader to examine any given contaminant concentration with respect to the analytical detection limit, the Provincial Water Quality Objectives and environmental fate to make a quick assessment of the potential impact that discharging that contaminant may have on the receiving waters.

Toxic contaminants that persist in the environment or bioaccumulate in the food chain and which are discharged at levels exceeding the PWQO/Gs have the greatest potential for harming the environment.

DATA TABLES (APPENDIX E)

The core of the report is the comprehensive LOTUS 123 table listing in Appendix E, of the contaminant concentrations and loadings by individual control points at each plant site.

The tables present twelve-month average concentration and loading data for twelve conventional parameters together with any of the EMPPL parameters which qualified as found under the 90/10 edit rule for both intake water and plant effluents.

In reviewing the data in the tables, the following points should be noted:

- the term "found" refers to parameters which met the 90/10 edit criteria
- except for a core group of 12 conventional parameters, only found parameters are listed
- average concentration and loading values for the 12 conventional parameters are reported for all sampling points even if none of the parameters qualified as found
- it was only necessary for a parameter to be found in one plant effluent or in the intake water to have it listed in the tables for all of the sampling points at that site even if it did not qualify as found in the other site effluents

- the average concentration of a contaminant that did not qualify as found at a given sampling point but was listed on the basis that it was found at another sampling point at the same plant, is shown in the concentration tables in smaller size print

- concentration averages for a given parameter within a 1 to 5-fold range of the Regulation Method Detection Limit, if based on a limited number of data points (e.g. 4 points), have an uncertainty range of at least ±33% at 1RMDL and ±7% at 5RMDL

- corresponding loading averages calculated from such data should be interpreted with caution

- **concentration values reported as less than the analytical detection limit (coded as "<" or "< DL") were assigned the value of the detection limit for the purpose of calculating averages**

- **concentration values reported with the remark code "<WE - no measurable response (dilution)" were assigned the value accompanying the remark code for the purpose of calculating averages**

- concentration values less than RMDL/10 were converted to RMDL/10 for use in the calculation of averages

- since values coded as "less than the analytical detection limit" can also mean that the parameter was not present, the use of the detection limit substitution for a large number of "less than detection" values may result in averages biased on the high side

- substitution of zero for values coded as "less than the analytical detection limit" was rejected because of the downward bias on the averages

- a limited amount of data from three plants - Dupont Canada Inc., Maitland; Ethyl Canada Inc., Sarnia; Polysar Ltd., with numerical values above RMDL but remark-coded with "<WE - **no measurable response (dilution)**" because of analytical matrix interference is highlighted with shading in Appendices E, F and G

- the presence or absence of contaminants coded with "<WE" is uncertain although the reported "WE" values, being above RMDL, may have qualified the parameters as found under the 90/10 edit rule - this ensured that the possible presence of such parameters would not be overlooked in the limit setting process

- reportable loadings result from concentrations around RMDL values when high flows are involved

- intake water analysis data is included in site tables and plots but should be interpreted with caution because of the low number of samples in some cases, parameter concentration values close to the RMDL and potential high inaccuracies associated with the estimation of intake water flow

- intake water analysis for a given plant along the St. Clair River may be impacted by the relative close proximity of upstream effluents discharged from other sources or from upstream effluent discharges from the same plant

- where plant intake water flows were not provided, the average intake flow was set equal to the average sum of the reported plant effluent flows including once-through cooling water

- additional information including individual data points, number of values reported for each parameter, monthly average concentration, flow and loading values is available from the MISA office

ACUTE LETHALITY

Rainbow trout and Daphnia magna acute lethality tests were required monthly on all final discharges to watercourses.

The detailed results of the twelve months of acute lethality testing by the OCM Sector plants, covering some 1300 individual tests, were submitted to the Ministry and were compiled by the Limnology Section in two reports covering six-month periods October 1, 1989 to March 31, 1990 (7) and April 1, 1990 to September 30, 1990 (8).

The reports indicate that over the twelve-month monitoring period one or more of the samples from the final discharges were acutely lethal to trout and/or Daphnia magna at the following eleven plants:

- Amoco Canada Resources Ltd - Sarnia
- Chinook Group Ltd - Sombra
- Cornwall Chemicals Ltd - Cornwall
- Courtaulds Fibres Canada - Cornwall
- Dow Chemical Canada Inc - Sarnia
- Dupont Canada Inc - Kingston
- Dupont Canada Inc - Maitland
- Dupont Canada Inc - Whitby
- Ethyl Canada Inc - Sarnia
- G.E. Plastics Canada Ltd - Cobourg
- Uniroyal Chemical Ltd. - Elmira

Of the eleven plants, the following three were reported to have the highest incidence of acutely lethal effluents to trout and/or Daphnia magna:

- Cornwall Chemicals Ltd - Cornwall
- Courtaulds Fibres Canada - Cornwall
- G.E. Plastics Canada Ltd - Cobourg

CONTAMINANTS FOUND (APPENDIX E)

Table 2 is a matrix of contaminants found at each plant site based on the 90/10 edit rule. The trigger value of RMDL or above used for the "found" edit is very conservative resulting in the categorization of parameters as "found" with averages at the detection limit or just above. The environmental fate category for each of the found contaminants is also listed.

Contaminants which may or may not be present in the effluents of three plants but were "found" under the 90/10 edit rule, because a significant portion of the reported data was remark-coded with "<WE" values above RMDL, are identified with a WE overwrite in Table 2.

The details of the 90/10 edit rule are presented in Appendix A.

For specific conductance a level of 500 uS/cm was used as the "found" trigger value to highlight potential concern over the concentration of dissolved solids. Specific conductance levels for pristine water bodies would normally be in the range of 100-300 uS/cm.

Effluent pH values outside of the Provincial Water Quality Objective range of 6.5 to 8.5 are are treated as "found" in Table 2.

The matrix allows for quick identification of OCM Sector plant sources for any of the conventional and Sector priority pollutants of interest.

Under the regulation, the OCM Sector plants monitored a total of one hundred effluent streams including sixty process, seventeen once-through cooling water, twenty-one storm and two waste disposal site effluents. Of the one hundred effluents, seventy-four were final discharges to watercourses.

Of the one hundred and fifty-five parameters set out for regulatory monitoring for the OCM Sector, a total of one hundred and sixteen, including twelve conventional contaminants were found in the OCM Sector effluents. Of the total found, sixty-one parameters are known to be persistent and/or bioaccumulative. Seven contaminants/groups of the one hundred and sixteen found are on the Ministry candidate list for bans or phaseouts (9). The seven are highlighted in Table 2 with a "+" in the ATG column.

The total number of parameters found in effluents at individual sites ranged from seventy-seven parameters, including twelve conventional parameters, at Dow Chemical in Sarnia to five parameters at Akzo Chemicals Ltd in Sarnia. Of the parameters found at Dow, thirty-eight are known to be persistent and/or bioaccumulative.

Ten or more EMPPL parameters were found at twenty-two of the twenty-six plants. Five plants had fifty or more found EMPPL parameters. Four plants had fewer than ten found parameters.

Twenty-six of the one hundred and sixteen parameters were found at only a single plant. Fifty-eight parameters or fifty percent of the total found, were found at four or fewer plants.

Since some of the reported parameters were also found in the intake water, the data tables in Appendix E should be checked to determine the source of the contaminants at each plant site.

Based on information presented in the "Issue Resolution Committee Reports (10), Table A-2 in Appendix A, categorizes each of the contaminants on the OCM Sector Monitoring List according to its fate in the environment. For the one hundred and fifty-five parameters listed, the environmetal fate classification breaks down as follows:

- eighty-seven are known to be persistent and/or bioaccumulative
- twenty-eight are known to be non-persistent and non-bioaccumulative
- twenty-five parameters are either non-persistent with unknown bioaccumulation, non-bioaccumulative with unknown persistence, or have both persistence and bioaccumulation unknown
- fifteen parameters which are unclassified because of their generic nature

Specific average values of concentrations and loadings corresponding to each shaded cell in the Table 2 matrix can be obtained from the data tables in Appendix E.

PLANT EFFLUENT FLOWS (APPENDIX B)

Figure B-1 in Appendix B, provides a comparison of the twelve-month average total site effluent flows for each plant site to provide a perspective on the potential impact of flow on the calculation of loadings from Sector plants.

Three plants, Dow, Polysar and Dupont (Maitland) are categorized as high flow plants with effluent discharges up to one million cubic metres/day. Seven other plants are categorized as medium flow with effluent discharges up to 100 000 cubic metres/day and sixteen plants are listed as low flow with effluent volumes less than 3 000 cubic metres/day.

For plants with high water flows, the detection of parameters at concentrations near or at the RMDL can lead to what appear to be significant loadings either in their discharges or intakes. For example, for a flow of 500 000 cubic metres/day and a parameter with a detection level concentration of 10 ug/l, the calculated loading would be 5 kg/day.

Loadings calculated for detection-level concentrations should not always be taken as "proof-positive" of the real presence of the parameters being measured.

Table B-1 in Appendix B, provides additional flow information. In the table, the total site flows, shown in Figure B-1, are broken down for individual plant control points. Minimum, maximum and standard deviation data is shown to allow an estimate of flow variability. The number of data points, also shown in the table, corresponds to daily flow measurement for process and combined effluents and to monthly flow measurement for OTCW streams.

It should be noted that twelve-month average loadings, as shown in the data tables in Appendix E, were calculated by averaging daily loading data. Therefore multiplication of twelve-month average flows, as shown in Table B-1, times the appropriate twelve-month average concentrations shown in the data tables in Appendix E, will not necessarily provide the same loading results as shown in the loading tables in Appendix E.

DISCHARGES OF CONVENTIONAL CONTAMINANTS (APPENDIX E)

The tables in Appendix E show the monitoring results for the OCM Sector in the form of twelve-month average concentration, flow and loading values for parameters in individual intake and effluent streams monitored at each plant site.

The twelve conventional parameters, listed in Appendix A, are shown for each site. Other parameters which were monitored are shown along with their concentration and loading averages only if they were "found" where "found" is defined according to the 90/10 edit rule described in Appendix A.

Two plant sites, Polysar and Uniroyal, were required to monitor two streams passing through their property - the Cole Drain and Shirt Factory Creek respectively.

The data in Appendix E were calculated from the daily, thrice-weekly, weekly, monthly, quarterly and semi-annual data sets submitted by the sector plants under the regulation. Statistical outliers and data for parameters with potential field QA/QC concerns were included.

The twelve-month average values for the conventional parameters were generally based on fifty-two, one hundred and fifty-six or three hundred and sixty-five observations corresponding to weekly, thrice-weekly or daily monitoring respectively. Averages for the other parameters were generally based on fifty-two, twelve or four data points representing weekly, monthly or quarterly monitoring respectively.

Since the Rohm and Haas plant in Scarborough does not normally discharge any water directly, the concentration data in Appendix E is based on averaging a total of six emergency discharges of once-through cooling water which occurred during the one year monitoring period. The total duration of forty-two hours was used to calculate the total loadings for the monitoring year.

Intake water monitoring was not a regulatory requirement but plant sites generally monitored intake water on a monthly basis for all of the parameters that were being monitored under their effluent monitoring requirements.

Six of the twenty-six Sector plants did not provide any monitoring data for their intake water. Five of the plants, Akzo Chemicals Ltd., BASF Canada at Arnprior, Guardsman, Morbern and Rohm & Haas (Scarborough) are small plants with OTCW being their only direct discharge.

Table 3 shows both the intake water and plant effluent twelve-month average conventional contaminant loadings for eleven selected conventional parameters, in kilograms per day, for the top seven dischargers. Data for plant sites not listed in Table 3 can be obtained from the specific plant tables in Appendix E.

(i) Twelve-Month Average Loading Plots (APPENDIX C)

Typical monitoring results in the form of twelve-month average intake and effluent loadings for eleven selected conventional parameters are compared in order of descending loadings in Figures C-1 to C-11 in Appendix C for the top OCM Sector dischargers. The eleven parameters plotted include eight of the core group of twelve conventional parameters and three other generic conventional parameter groups - total cyanide, phenolics and sulphide.

The parameters were selected for plotting on the basis of quantities discharged and their universal presence in the Sector effluents. Where available, corresponding intake loadings were plotted alongside the effluent data for comparison.

The core group conventionals not plotted included COD, TOC, pH and Specific Conductance. The data for all plots were taken from the INTAKE and TOTAL Column values shown in the loading tables in Appendix E.

The plots aid in the identification of the major sector dischargers for the selected parameters and provide a comparison of the potential environmental impact of these discharges. The several orders of magnitude differences in the ranges of some of the plotted data reflect the diversity of plant sizes and processes within the Sector.

In general, a review of the plotted data shows that the following seven plants produced the highest discharges of the eleven selected conventional contaminants:

- Courtaulds Fibres Canada
- Dow Chemical Canada Inc
- Dupont Canada Inc - Kingston Site
- Dupont Canada Inc - Maitland Site
- Ethyl Canada Inc
- GE Plastics Canada Ltd
- Polysar Ltd

(ii) Monthly Average Loading Plots (APPENDIX D)

Figures D-1 to D-3 show the individual plant monthly average intake and effluent loadings for three conventional parameters - DOC, TSS and oil and grease. The monthly effluent averages are generally based on 30 data points for DOC, 12 data points for TSS and 4 data points for oil and grease. The corresponding monthly intake data are generally based on a single monthly sample.

Data for all of the plants are plotted for completeness. The several orders of magnitude scale differentials among the plots for a given parameter clearly identify the same major dischargers as were identified by the twelve-month average data plots.

The data were plotted to examine any monthly or seasonal effluent trends and to compare effluent and intake loadings. The plots illustrate several cases where loadings in the plant intake water contribute significantly to effluent loadings. The plots appear to show no obvious seasonal trends in the data.

DISCHARGES OF EMPPL CONTAMINANTS (APPENDIX E)

Table 4 identifies the top six OCM Sector dischargers of EMPPL parameters. Both intake water and effluent twelve-month average loadings in kilograms per day are shown. Selection of the plants was based on presence in their effluents of EMPPL contaminants in at least three Analytical Test Groups (ATGs) from ATG 9 to ATG 27.

For simplicity, the EMPPL contaminants are shown grouped by their generic ATG families. The individual parameters in each ATG are listed in Table A-1. Specific parameter loadings may be obtained from the tables in Appendix E.

Among the EMPPL parameters found were the following seven which are on the Ministry primary list of substances for ban or phase-out (9):

- arsenic
- 1,4-dichlorobenzene
- hexachlorobenzene
- mercury
- phenanthrene
- polychlorinated biphenyls (PCBs)
- polychlorinated dibenzo-p-dioxins and furans (PCDD/PCDFs)

The following six plants produced the highest discharges of EMPPL contaminants:

- Cornwall Chemicals Ltd
- Courtaulds Fibres Canada
- Dow Chemical Canada Inc.,
- Dupont Canada Inc - Maitland Site
- Ethyl Canada Inc
- Polysar Ltd

DISCHARGE OF POLYCHLORINATED DIBENZO-p-DIOXINS (PCDDs) AND POLYCHLORINATED DIBENZOFURANS (PCDFs) (APPENDICES E and I)

PCDDs and PCDFs refer to families of related chemical compounds including 75 PCDDs and 135 PCDFs. The most toxic forms are those containing 4 to 6 chlorine atoms with 2,3,7,8-tetrachlorodibenzo-p-dioxin (T4CDD) being the most toxic of all. The Ontario Drinking Water Maximum Allowable Concentration for 2,3,7,8-T4CDD is 15 pg/l.

Octachlorodibenzo-p-dioxin and its octachlorodibenzofuran equivalent are the least toxic of the group with an estimated toxicity 1000 times less than that of 2,3,7,8-T4CDD. The octa chlorinated form is also the most commonly found. The toxicity equivalency factors are shown in Table 5.

The sources of PCDDs and PCDFs in Ontario are typically combustion units including municipal refuse and sludge incinerators, the use of products such as chlorinated phenols and transboundary water and air contamination. In some cases stormwater run-off from non-process areas has been demonstrated to contribute PCDDs and PCDFs to plant effluents.

All PCDD and PCDF data should be interpreted with caution because of the inherent high variability of the extremely sensitive analytical methods and the difficulty in obtaining a representative sample because PCDDs and PCDFs tend to adhere to solids.

PCDD/PCDF data from the regulatory monitoring period can be found in two sections of the report. The data tables in Appendix E show the specific twelve month average concentrations of the PCDDs and PCDFs and identify the streams where they were found.

The most complete results of PCDD/PCDF monitoring are shown in Appendix I. The tables list the number of samples taken, and the minimum, maximum and average values for all of the congener groups analyzed at each sampling point. The results meeting the 90/10 edit criteria for "found" are shaded in the tables.

As can be seen in Appendix I, most of the PCDD/PCDF results are based on the analysis of four samples over the twelve month monitoring period. PCDD/PCDF results reported as less than detection including "< 300 pg/l", the original regulatory RMDL requirement, which was replaced by RMDL values in the 15-30 pg/L range about three months into the monitoring period, were not considered to be detects in the 90/10 edit to identify found PCDDs and PCDFs.

To enhance the limited database, PCDD/PCDF results from Ministry inspections were added to the tables in Appendix I. While the Ministry inspection sampling was not done on the same days as the plants sampling for PCDDs/PCDFs, the data comparison in Appendix I is useful in verifying industry data and providing more certainty as to either the presence or absence of PCDDs or PCDFs in plant effluents.

Any single Ministry inspection result **without** a "< - less than", should be considered to indicate the possible presence of that particular PCDD/PCDF congener group. The degree of certainty as to the presence or absence of a particular PCDD/PCDF group will increase as the number of data points increases.

A review of the industry-supplied PCDD/PCDF data, indicates that PCDDs/PCDFs have been detected in effluents at the following nine sector plants:

- B.F. Goodrich Canada Inc - Thorold
- Celanese Canada Inc - Millhaven
- Chinook Group Ltd - Sombra
- Cornwall Chemicals Ltd - Cornwall
- Dow Chemical Canada Inc - Sarnia
- Dupont Canada Inc - Corunna
- Dupont Canada Inc - Kingston Site
- Dupont Canada Inc - Maitland Site
- Uniroyal Chemical Ltd - Elmira

At B.F. Goodrich Canada Inc., only octachlorodibenzo-p-dioxin was detected but at comparable levels of 163 and 228 pg/l in the plant intake water and in its effluent respectively.

To compare the potential environmental impact of the various PCDDs/PCDFs found at each of the seven plants, use was made of toxicity equivalency factors to express the concentration of all of the found PCDDs and PCDFs in terms of equivalent 2,3,7,8-tetrachlorodibenzo-p-dioxin concentration expressed as TEQ pg/l.

Table 5 shows both the TEQ concentration summary for the sampling points where PCDDs/PCDFs were found, and the total annual average loading of all of the PCDDs/PCDFs found for the same control points. The toxicity equivalency factors used to calculate the TEQ concentrations are also shown.

Streams designated as intermediate in Table 5 flow into other streams prior to discharge to the environment. The footnotes for the tables in Appendix E list the names and destinations of all of the streams shown in Table 5.

A comparison of the calculated TEQ levels as shown in Table 5 for final discharges with the Ontario Drinking Water Objective of 15 pg TEQ/l indicates that the following two sites were in exceedance:

- Chinook Group Ltd - Sombra
- Dow Chemical Ltd - Sarnia

ONCE-THROUGH COOLING WATER (OTCW) DISCHARGES (APPENDIX E)

The results of monitoring of the seventeen once-through cooling water streams at twelve sector plants are shown as part of the overall results in the tables in Appendix E. The individual streams can be identified through the **OT** coding prefix used to designate the OTCW streams.

Seven of the seventeen OTCW streams monitored showed some trace contamination where the average level of at least one contaminant was above RMDL and/or above the intake level. The main contaminants were generally phenolics and oil and grease suggesting the possibility of process leaks into the cooling water systems.

STORM WATER DISCHARGES (APPENDIX F)

A total of twenty-one storm water effluent streams were monitored at 12 plants at least once per month by taking a grab sample during a storm event (at least 5 mm of rain over twenty-four hours). Of the twenty-one storm water streams, sixteen discharge directly to a watercourse while five discharge into another plant effluent stream.

The tables in Appendix F present the concentrations and loadings for storm water for the twelve core conventional contaminants, if they were reported, as well as any other parameters that qualified as found under the 90/10 edit rule.

All of the data shown is semi-quantitative because of the inherent high variability associated in grab sampling a limited number of storm events and using estimates of storm water volumes discharged to calculate loadings.

The data for storm water sampling is highly dependent on when, during the event, the stream was sampled. The "first flush" early sampling would tend to be the highest concentration. Sampling later in the storm event would tend to produce lower concentration samples. The time between storm events would also impact on the variability of storm water samples.

The annual loadings of contaminants from storm water presented in Appendix F, should be considered as approximate "ball-park" values. Their purpose is to provide at least an approximate comparison with process effluent loadings to determine if a future storm water control study should be undertaken at the site.

For the twelve plants with storm water discharges, the yearly contribution of contaminant loadings from storm water was in the order of the contribution of the same contaminants from process effluents in one day. Storm water control studies will be required at the twelve sites to obtain a better understanding of storm water impact and potential methods of storm water control.

EMERGENCY OVERFLOW DISCHARGES (APPENDIX G)

Data for discharges from ten emergency overflow sampling points are shown in the tables in Appendix G.

All of the data shown for the three emergency discharges for Dow Chemical Canada Inc., were collected during the initial months of monitoring under the regulation when the three streams were classified as process streams because they were discharging continuously to the St. Clair River. Within 5 months of the start of regulatory monitoring, all three streams were routed to the biological treatment plant and as such did not require further monitoring. The former sewer lines to the river were designated as emergency overflow discharge points but no effluents were discharged through the lines after the three streams were routed to biotreatment.

Two of the emergency overflows shown for Polysar, EM1301 and EM1302, reflect diversions of process effluents to a large storm water surge pond. Data for the storm water effluent from the surge pond is shown in Appendix E under ST1300. A comparison of the data for the 3 streams clearly indicates that the diversion of contaminants via EM1301 and to a lesser extent via EM1302, is the cause of the high levels of TSS, aluminum, zinc, oil and grease and bromo and chloromethane discharged in ST 1300.

Data for Amoco shows only one by-pass at EM0200 and eight API Surge Pond Overflows. The API Surge Pond overflows are similar to the effluent discharged from the API separator because the Surge Pond can function as a separator with the overflow being taken off below any oil layer through an inverted elbow.

PLANT-MINISTRY DATA COMPARISON (APPENDIX H)

Throughout the regulatory monitoring period Operations Division staff collected inspection samples at the sites to check on the industry supplied data.

The results of such Ministry sampling are presented in tables in Appendix H. Ministry data are only provided for each of the industry "found" parameters for the sampling points for which Ministry data were available.

The industry twelve month database is represented by the average twelve-month concentration (LTA) and the 99th percentile (P99) values. The individual Ministry sample data, where available, is presented alongside.

The 99th percentile takes account of the variability of the industry data and therefore, represents an upper limit value for the industry-reported parameters. If the Ministry inspection results are equal to or less than the shown P99 value, then there is a high probability that no large systematic differences exist between industry and Ministry samples and that industry provided reliable data.

The Ministry data shown covers inspection sampling over the period of October 1, 1989 to December 31, 1991. The industry data was obtained in the period from October 1, 1989 to July 31, 1991.

Although the industry/ministry data is not congruent in time, it is nevertheless useful to compare the Ministry results with those provided by industry to get an indication of whether the industrial self-monitoring data is valid.

A comparison of the plant-ministry data in the tables in Appendix H, shows virtually all of the Ministry data within the 99th percentile of the plant values. In fact, much of the Ministry data falls very close to the LTA values to further confirm the good agreement between the two data sources leading to the conclusion that there are no serious discrepancies between the plant the ministry data and therefore the industry data can be used in the limit setting phase of the MISA program development.

TOTAL SECTOR LOADINGS (APPENDIX E)

The total OCM Sector twelve-month average intake and effluent loadings for all of the parameters found by sector plants are shown in Table 6. The loadings were calculated by summing for all plants, the total plant loading column values shown in the tables in Appendix E. The number of significant dischargers (those contributing more than a 10% share of the total gross loading of a parameter) are also shown in Table 6 to provide a perspective on how widely the individual contaminants are distributed within the sector.

It is evident that for any individual contaminant, only a relatively few plants contribute significantly to its total loading to a watercourse. This is consistent with the known wide diversity of products manufactured and large plant size variations in the OCM Sector.

V REFERENCES

(1) Ontario Ministry of the Environment,MISA Section, Water Resources Branch, "Six-Month Monitoring Data Report, Organic Chemical Manufacturing Sector (October 1, 1989 to March 31, 1990), ISBN 0-7729-8922-2, February 1992, Queen's Printer.

(2) Michajluk, S., and Boyd, D., MISA Section, Water Resources Branch, Ontario Ministry of the Environment, "Report on the Assessment of the Quality Assurance and Quality Control Data for the MISA Organic Chemical Manufacturing Sector", February 1992.

(3) Ontario Ministry of the Environment, MISA, "The Development Document For The Effluent Monitoring Regulation For The Organic Chemical Manufacturing Sector, ISBN: 0-7729-5565-4, May 1989, Queen's Printer

(4) Ontario Ministry of the Environment, Hazardous Contaminants Branch, MISA, "The Effluent Monitoring Priority Pollutants List (1987)", ISBN 0-7729-2784-7, July 1988, Queen's Printer.

(5) Ibid, "The Effluent Monitoring Priority Pollutants List - 1988 Update, ISBN 0-7729-5450-X, March 1989, Queen's Printer.

(6) Ontario Ministry of the Environment, "Report on the 1990 Industrial Direct Discharges in Ontario, draft, June 1992, Queen's Printer.

(7) Ontario Ministry of the Environment, Water Resources Branch, Aquatic Toxicity Unit,"Acute Lethality Data for Ontario's Organic Chemical Manufacturing Sector Effluents Covering The Period From October 1989 to March 1990", ISBN 0-7729-8788-2, September 1991, Queen's Printer

(8) Ibid, "Acute Lethality Data for Ontario's Organic Chemical Manufacturing Sector Effluents Covering The Period From April 1990 to September 1990", draft, June 1992.

(9) Ontario Ministry of the Environment, Hazardous Contaminants and Water Resources Branches, "Candidate Substances List for Bans or Phase-Outs", ISBN 0-7729-9764-0, April 1992, Queen's Printer.

(10) Ontario Ministry of the Environment, Water Resources Branch, MISA, "MISA Issues Resolution Process - Issue Resolution Committee Reports", draft, June 1990, Queen's Printer.

TABLE 1 OCM Sector Plant Overview *

Plant Name	Location / Basin	No. of Emp	Major Raw Materials	Intermediate & Final Products	End of Pipe Treatment	No. of Outfalls
Akzo Chemicals	Sarnia / St.Clair River	17	Isopropyl Alcohol, Tallow Amines Halogenated Tallow Fatty Acids Methyl Chloride, Dimethyl Sulphate	Fabric Softeners, Defoamers, Slip Agents	Biological @ Polysar	1
Amoco	Sarnia / St.Clair River	70	Natural Gas Liquids by pipeline	Propane, Isobutane, n-Butane, Hydrocarbon C5+ Condensate	Oil Separation	1
B.F. Goodrich	Welland / Welland River	215	Vinyl Chloride, Trichloroethylene	Polyvinyl Chloride (PVC)	Biological Treatment	1
BASF Canada	Arnprior / Ottawa River	350	Caprolactam monomer, Nylon chips	Nylon 6 carpet fibre and polymer for wire and cable and injection moulding	Municipal Treatment	1
BASF Canada	Sarnia / St.Clair River	90	Styrene Butadiene	Styrene-Butadiene Latex (for paper coating, carpet backing pressure sensitive adhesives)	Biological @ Polysar	2
Canadianoxy	Fort Erie / Niagara River	40	Phenol, Formaldehyde	Phenol-Formaldehyde resins	Municipal Treatment	1
Celanese	Millhaven / Lake Ontario	630	Ethylene Glycol, Terephthalic Acid	Polyster staple and yarn	Biological Treatment	3
Chinook Group	Sombra / St.Clair River	50	Methanol, Ammonia, Methyl Formate, Hydrochloric Acid, Ethylene Oxide	Amines, Dimethyl Formamide solvent, Choline Chloride poultry feed	Settling and Spray Irrigation	1
Cornwall Chemicals	Cornwall / St.Lawrence River	70	Sulphur, Chlorine, Natural Gas	Carbon Disulphide, Carbon Tetrachloride	None	1
Courtaulds Fibres	Cornwall / St.Lawrence River	350	Wood pulp, Caustic Soda, Zinc, Carbon Disulphide, Sulphuric Acid	Rayon staple, Anhydrous Sodium Sulphate	None	6
Dow Chemical	Sarnia / St.Clair River	1000	Ethylene Benzene Hexane Butadiene Brine	Chlorine, Caustic Soda, Hydrochloric Acid, Ethylene Dichoride, Vinyl Chloride, Chlorinated Solvents, Propylene Oxide and its derivatives, Ethylbenzene, Styrene, Polystyrene, high & low density Polyethylene, Styrene/Butadiene Latex, Epoxy Resins	Biological	10
Du Pont Corunna	Corunna / St.Clair River	260	Ethylene, Cyclohexane, Butene, Octene	Linear low density and high density Polyethylene	Settling and Oil Skimming	1

* Reflects operations during the monitoring period.

TABLE 1 OCM Sector Plant Overview *

Plant Name	Location / Basin	No. of Emp	Major Raw Materials	Intermediate & Final Products	End of Pipe Treatment	No. of Outfalls
Du Pont Kingston	Kingston / Lake Ontario	1800	Adipic Acid, Hexamethylene Diamine	Nylon staple, yarn and resin	Trickling Filter, Municipal Treatment	2
Du Pont Maitland	Maitland / St.Lawrence River	700	Cyclohexane, Nitric Acid, Adiponitrile, Ammonia, Hydrogen Fluoride, Carbon Tetrachloride, Chloroform, Tetrachloroethylene, Chlorine, substituted Diisocyanate, Glycol Anthraquinone, Hydrocarbon Solvent	Adipic Acid, Hexamethylene Diamine, Hydrogen Peroxide, Chlorofluorocarbons, Spandex fibre, engineering resins, Hydrochloric Acid, Hydrogen	Biological Treatment Oil Separation	1
Du Pont Whitby	Whitby / Lake Ontario	280	Polyethylene Resin , Nylon Flake	Polyethylene film and netting, Nylon film	None	5
Esso Chemical Canada	Sarnia / St.Clair River	600	Vinyl Chloride Monomer, Ethylene, Butene, Hexene, Aromatic Reformate	Polyvinyl Chloride, high & low density Polyethylene, Naphtha, higher olefins Benzene, Toluene, Xylene	Oil Separation Dual Media Filtration Activated Carbon Adsorption	1
Ethyl	Sarnia / St.Clair River	170	Lead, Sodium, Ethylene, Hydrogen Chloride	Tetraethyl Lead, Ethyl Chloride, Aluminum Alkyls, diesel ignition improver	Settling, Chemical Reduction, Precipitation, Flitration	1
G.E. Plastics	Coburg / Lake Ontario	170	Acrylonitrile, Styrene, Polybutadiene latex, Pigments	Acrylonitrile–Butadiene–Styrene (ABS) resins	Biological Treatment	2
Guardsman	Cornwall / St.Lawrence River	134	Solvents – Toluene, Xylene, Methanol, Isopropanol, Isobutanol, Isobutyl Acetate, Lacquers, Acrylates, Styrene	Furniture stains, sealers and topcoats, Polyester and Alkyd resins	None	1
Morbern	Cornwall / St.Lawrence River	234	Vinyl Chloride resin, plasticizers, pigments, fabric	Plasticized vinyl coated fabric laminates	None	1
Novacor	Mooretown / St.Clair River	200	Ethylene, Butene, Hexene	High & low density Polyethylene	Settling, Filtration	1
Polysar	Sarnia / St.Clair River	2000	Crude Butadiene, Benzene, Ethylene Butene, Isoprene, Methyl Chloride, Isopropyl alcohol, Acetonitrile Hexane, Chlorine Bromine, Acrylonitrile, Cyclohexane	Butadiene, Ethylbenzene, Styrene Isobutylene, Tertiary Butyl alcohol, Rubbers: Polybutadiene, Styrene–Butadiene, Bromobutyl, Chlorobutyl, Butyl, Acrylonitrite–Butadiene	Biological Treatment	7

* Reflects operations during the monitoring period.

TABLE 1 OCM Sector Plant Overview *

Plant Name	Location / Basin	No. of Emp	Major Raw Materials	Intermediate & Final Products	End of Pipe Treatment	No. of Outfalls
Rohm & Haas Morrisburg	Morrisburg / St.Lawrence River	140	Methyl Methacrylate, Acrylic polymer granules, Methacrylic Acid Esters	acrylic sheet oil additives	Oil Separation	1
Rohm & Haas Scarborough	Scarborough / Lake Ontario	175	Acrylonitrile, Ethyl and Butyl Acrylate, Ethyl Methacrylate, Styrene, Vinyl Acetate, Soya Oil, Formic Acid, Hydrogen Peroxide	Acrylic, Styrene and Vinyl Acetate emulusions for coatings, paints, adhesives, Soya Oil plasticizer used in food packaging	Municipal Treatment	1
Stepan	Longford Mills / Lake St. John	70	linear Alkyl Benzenes, detergent alcohols, Sulphur, Phenol, Nonene, Ethylene Oxide, Ethanolamines, natural long chain oils and fatty acids	detergent bases, wetting agents, emulsifying agents	Biological Treatment	1
Uniroyal	Elmira / Grand River	250	Acetoacetanilide, Ammonia, Toluene, Sulphuryl Choride, Morpholine, Decene, Mercaptobenzothiazole, Acetaldehyde, substituted Diisocyanates, Butene Diols, Aniline, Acetone	rubber accelerators and antioxidants, seed fumigants, fungicides, food flavouring agents, Polyurethane prepolymers, Synthetic oils	Biological Treatment, Activated Carbon Adsorption, Ultraviolet, Municipal Treatment	4

* Reflects operations during the monitoring period.

TABLE 2 – Matrix of Contaminants Found in Plant Effluents

RECEIVING WATERCOURSE					♦	O		♦	♦		O	O			♦	O	♦			♦	O	O			O	♦	♦	♦	Total
ATG	PARAMETER / COMPANY ID.	Env. Fate	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	Sites
1	COD	C																											19
2	Cyanide Total	NC																											10
3	Hydrogen ion (pH) *	C																											10
4	Ammonia plus Ammonium	C																											13
4	Nitrate+Nitrite	C																											20
4	Total Kjeldahl Nitrogen	C																											20
5	DOC	C																											26
5	TOC	C																											21
6	Total phosphorus	C																											18
7	Specific conductance **	C																											14
8	Total suspended solids	C																											20
8	Volatile suspended solids	C																											13
9	Aluminum	P-UB																											26
9	Beryllium	P-UB																											2
9	Boron	P-NB																											12
9	Cadmium	P-UB																											4
9	Chromium	P-UB																											6
9	Cobalt	P-NB																											2
9	Copper	P-UB																											19
9	Lead	P-UB																											4
9	Molybdenum	P-NB																											6
9	Nickel	P-B																											7
9	Thallium	P-UB																											2
9	Vanadium	P-UB																											4
9	Zinc	P-NB																											26
10	Antimony	P-B																											5
10+	Arsenic	P-NB																											3
11	Chromium (hexavalent)	P-UB																											7
12+	Mercury	P-B																											9
13	Tetra-alkyl lead (Total)	P-UB																											1
13	Tri-alkyl lead (Total)	P-UB																											1
14	Phenolics (4AAP)	NC																											24
15	Sulphide	NC																											17

TABLE 2 – Matrix of Contaminants Found in Plant Effluents

RECEIVING WATERCOURSE					♦	O		♦	♦		O	O			♦	O	♦			♦	O	O			O	♦	♦	♦	Total
ATG	PARAMETER / COMPANY ID.	Env. Fate	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	Sites
16	1,1,2,2–Tetrachloroethane	P–NB																	WE										5
16	1,1,2–Trichloroethane	NP–UB																	WE					WE					5
16	1,1–Dichloroethane	P–NB																						WE					7
16	1,1–Dichloroethylene	NP–UB														WE			WE					WE					4
16	1,2–Dichlorobenzene	NP–UB														WE			WE					WE					4
16	1,2–Dichloroethane	P–NB																	WE					WE					9
16	1,2–Dichloropropane	UP–UB																	WE					WE					5
16	1,3–Dichlorobenzene	NP–UB														WE			WE					WE					3
16+	1,4–Dichlorobenzene	NP–B														WE			WE					WE					4
16	Bromodichloromethane	P–NB																	WE										14
16	Bromoform	UP–UB																	WE										5
16	Bromomethane	UP–NB																	WE										5
16	Carbon tetrachloride	P–NB																	WE					WE					7
16	Chlorobenzene	P–NB																	WE										5
16	Chloroform	UP–NB																											19
16	Chloromethane	P–NB																											9
16	Cis–1,3–Dichloropropylene	NP–NB																	WE					WE					5
16	Dibromochloromethane	P–NB																	WE										9
16	Ethylene dibromide	UP–UB																						WE					4
16	Methylene chloride	UP–UB																						WE					12
16	Tetrachloroethylene	NP–NB																	WE					WE					7
16	Trans–1,2–Dichloroethylene	P–NB														WE			WE					WE					3
16	Trans–1,3–Dichloropropylene	NP–NB																	WE					WE					4
16	Trichloroethylene	NP–NB														WE			WE					WE					6
16	Trichlorofluoromethane	P–NB																	WE					WE					4
16	Vinyl chloride	NP–NB																	WE					WE					7
17	Benzene	NP–NB																	WE										11
17	Ethylbenzene	NP–NB																	WE										7
17	Styrene	UP–NB																	WE					WE					6
17	Toluene	NP–UB																											15
17	m–Xylene and p–Xylene	UP–NB														WE			WE					WE					7
17	o–Xylene	UP–NB																	WE					WE					10
18	Acrolein	UP–NB														WE								WE					3
18	Acrylonitrile	UP–UB														WE								WE					4

TABLE 2 – Matrix of Contaminants Found in Plant Effluents

RECEIVING WATERCOURSE			■	■	♦	O	■	♦	♦	■	O	O	■	■	♦	O	♦	■	■	♦	O	O	■	■	O	♦	♦	♦	Total
ATG	PARAMETER / COMPANY ID.	Env. Fate	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	Sites
19	1–Methylnaphthalene	NP–NB																	■										1
19	2,6–Dinitrotoluene	UP–NB											■																1
19	2–Chloronaphthalene	P–B											■																1
19	2–Methylnaphthalene	NP–B																	■										1
19	Acenaphthene	NP–NB																	■										1
19	Benzylbutylphthalate	NP–UB								■			■						■										3
19	Biphenyl	NP–B							■				■		■				■										4
19	Bis(2–chloroethyl)ether	P–NB											■																1
19	Bis(2–chloroisopropyl)ether	P–NB											■																1
19	Bis(2–ethylhexyl) phthalate	NP–B							■	■			■		■		■	■					■	■				■	9
19	Di–n–butyl phthalate	NP–B							■				■																2
19	Di–n–octyl phthalate	NP–UB															■												1
19	Diphenyl ether	P–B								■		■			■	■	■												5
19	Fluoranthene	P–B															■								•				1
19	Fluorene	NP–UB																	■										1
19	Indole	P–NB																	■										1
19	N–Nitrosodi–n–propylamine	NP–NB											■																1
19	Naphthalene	UP–NB											■						■										2
19+	Phenanthrene	P–B																	■										1
20	2,3,4,5–Tetrachlorophenol	NP–B											■																1
20	2,3,4–Trichlorophenol	NP–NB											■																1
20	Phenol	NP–NB										■	■						■										3
20	m–Cresol	NP–NB																	■										1
20	o–Cresol	NP–NB																	■										1
20	p–Cresol	NP–NB																	■										1
23	1,2,3,4–Tetrachlorobenzene	P–B							■																				1
23	1,2,3,5–Tetrachlorobenzene	P–B							■																				1
23	1,2,3–Trichlorobenzene	NP–NB		■					■		■																		3
23	1,2,4,5–Tetrachlorobenzene	P–B											■																1
23	1,2,4–Trichlorobenzene	NP–UB							■	■			■			■								■					5
23	2,4,5–Trichlorotoluene	P–B											■											■					2
23+	Hexachlorobenzene	P–B									■		■	■		■								■					5
23	Hexachlorobutadiene	UP–NB								■	■		■			■		■						■					6
23	Hexachlorocyclopentadiene	NP–NB									■		■																2
23	Hexachloroethane	P–NB									■		■	■		■		■						■					6
23	Octachlorostyrene	UP–B											■											■					2
23	Pentachlorobenzene	P–B							■					■										■					3

TABLE 2 – Matrix of Contaminants Found in Plant Effluents

RECEIVING WATERCOURSE			■	■	♦	O	■	♦	♦	■	O	O	■	■	♦	O	♦	■	■	♦	O	O	■	■	O	♦	♦	♦	Total
ATG	PARAMETER / COMPANY ID.	Env. Fate	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	Sites
24+	Total T4CDD	P–B													▒	▒													2
24+	Total T4CDF	P–B											▒																1
24+	Total P5CDD	P–B								▒			▒																2
24+	Total P5CDF	P–B											▒																1
24+	Total H6CDD	P–B								▒			▒															▒	3
24+	Total H6CDF	P–B											▒																1
24+	Total H7CDD	P–B									▒		▒	▒	▒													▒	5
24+	Total H7CDF	P–B									▒		▒		▒													▒	4
24+	Total O8CDD	P–B			▒				▒	▒	▒		▒	▒	▒	▒												▒	9
24+	Total O8CDF	P–B											▒			▒												▒	3
25	Oil and grease	C		▒	▒		▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒			▒	▒	▒	▒	▒	▒	22
27+	PCBT	P–B								▒																	▒		2
Total Number of Parameters found per site			5	30	25	9	13	6	35	33	40	31	77	24	50	67	17	23	70	20	10	14	19	63	23	8	23	28	763

Note: (i) Shading indicates found parameters.
(ii) Parameters found may include any pass–through parameters from intake water. (See tables in Appendix B for parameter sources)
(iii) WE indicates that the presence or absence of the parameter is uncertain. (See tables in Appendix B)
* – Shading for pH signifies daily readings outside of range 6.5 to 8.5 (may refer to internal stream or final discharge).
** – Trigger values of 500 uS/cm compares the effluents to conductivity of tap water.
+ – On Primary Candidate Substances List for Bans or Phase–Outs (Ref 9).

PLANT SITE CODING

1 – Akzo	8 – Chinook	15 – Du Pont (Whitby)	21 – Novacor
2 – Amoco	9 – Cornwall Chemicals	16 – Esso Chemical	22 – Polysar
3 – B.F. Goodrich	10 – Courtaulds Fibres	17 – Ethyl	23 – Rohm & Haas (Morrisburg)
4 – BASF (Amprior)	11 – Dow Chemical	18 – GE Plastics	24 – Rohm & Haas (Scarborough)
5 – BASF (Sarnia)	12 – Du Pont (Corunna)	19 – Guardsman	25 – Stepan
6 – Canadianoxy	13 – Du Pont (Kingston)	20 – Morbern	26 – Uniroyal
7 – Celanese	14 – Du Pont (Maitland)		

RECEIVING WATERCOURSE CODING

■ St. Clair River
O St. Lawrence River
♦ Lake Erie / Lake Ontario Basins

ENVIRONMENTAL FATE CODING

C – Conventional
N – Non (Prefix)
P – Persistent
B – Bioaccumulative
U – Unknown

ie. P–B means Persistent and Bioaccumulative

Table 3 – The Top Seven OCM Sector Dischargers of Conventional Contaminants (All results in kg/day)

ATG	Conventional Contaminant	Courtaulds Fibres		Dow Chemical		Du Pont Kingston		Du Pont Maitland		Ethyl		GE Plastics		Polysar	
		Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In
2	Cyanide	0.12	0.10	4.25	3.71	0.25	–	7.67	0.97	0.04	0.01	0.16	0.004	0.22	0.46
4	Ammonia + Ammonium	9	12	24	23	29	–	194	20	12	2	38	–	52	57
4	Nitrate + Nitrite	36	16	253	464	14	–	512	57	16	44	40	–	142	164
4	Total Kjeldahl Nitrogen	19	81	480	348	76	–	1335	65	36	6	45	–	124	227
5	DOC	1494	274	2225	1960	277	100	1180	434	66	77	31	–	1428	1283
6	Phosphorus	6.0	10.2	93.6	64.9	11.3	5.4	128.2	19.5	6.2	2.1	0.8	0.1	56.1	40.1
8	TSS	1192	72	5230	3814	366	491	5357	2843	385	166	44	–	2177	2430
8	VSS	846	72	2631	4052	231	–	3424	998	283	105	41	–	1546	1642
14	Phenolics	0.36	0.14	7.72	6.78	0.09	0.06	1.14	0.25	0.31	0.02	0.13	0.004	0.93	0.59
15	Sulphide	410.0	13.7	31.3	44.1	0.5	0.5	2.0	2.0	1.2	1.1	0.3	0.04	16.1	14.5
25	Oil and Grease	727	56	1116	1403	91	65	531	194	42	33	5	2	656	477

Explanatory Notes:
"–" – No intake data provided.
"Out" – Total effluent loadings discharged to watercourse
"In" – Intake water loadings to site

Table 4 – The Top Six OCM Sector Dischargers of EMPPL Contaminants
(All results in kg/day)

ATG	EMPPL Contaminat(s)	CORNWALL CHEMICALS		COURTAULDS FIBRES		DOW CHEMICAL		DU PONT MAITLAND		ETHYL		POLYSAR	
		OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN
9	Aluminum	+	+	+	+	51	30	+	+	105	2	59	34
	Boron	+	+	+	+	+	+	+	+	2.5	0.4	+	+
	Chromium	–	–	1.1	0.2	5.0	3.5	4.4	3.8	+	+	–	–
	Cobalt	–	–	–	–	–	–	4.4	3.9	–	–	1.7	1.0
	Copper	+	+	1.4	0.3	5.8	2.8	18.7	2.1	+	+	–	–
	Lead	–	–	2.1	0.6	27.7	22.3	–	–	12.4	0.3	–	–
	Molybdenum	+	+	–	–	63	17	–	–	–	–	+	+
	Nickel	+	+	0.6	0.3	12.1	5.6	+	+	+	+	+	+
	Zinc	+	+	345	6	92	3	11.8	2.4	0.6	0.1	5.4	3.0
10	Antimony	–	–	+	+	–	–	2.7	0.4	–	–	+	+
12	Mercury	0.002	**	0.074	0.004	+	+	–	–	0.020	0.001	–	–
13	Total Alkyl Lead	–	–	–	–	–	–	–	–	1.0	*	–	–
16	Volatiles, Halogenated	11.5	0.008	0.45	0.27	29.0	22.4	11.6	4.0	23.3	0.5	202	8
17	Volatiles, non–Halogenated	–	–	0.19	0.02	4.7	1.9	0.44	0.22	2.96	0.07	14.2	1.2
18	Volatiles, Water Soluble	–	–	–	–	–	–	2.3	1.1	–	–	7.3	2.1
19	Extractables, Base Neutral	–	–	+	+	10.4	9.3	+	+	0.5	0.2	0.8	0.7
20	Extractables, Acid (Phenolics)	–	–	+	+	+	+	–	–	+	+	+	+
23	Extractables, Neutral Chlorinated	–	–	–	–	0.09	0.06	+	+	–	–	0.04	0.02
24	PCDDs and PCDFs (1)	X	*	–	–	X	–	X	–	–	–	–	–

Explantory Notes :

ATG = Analytical Test Group (Refer to Table A–1 to identify individual parameters in each ATG)

"In" = Intake Loadings to Plant Site

"Out" = Total Effluent Loadings to Watercourse

(1) = PCDD – Polychlorinated Dibenzo–p–dioxins PCDF – Polychlorinated Dibenzofurans

"–" = Not Found Parameter(s) for the Plant Site

"**" = Loadings less than 1.0 gram per day

"*" = No Intake Data Provided

"+" = Comparable Intake and Effluent Loadings

"X" = PCDDs/PCDFs Found. See Tables in Appendices E and I for specific concentrations / loadings.

TABLE 5 – Summary of Effluents with Found PCDDs / PCDFs

Plant Site	Sample Point	Discharge Type	TEQ (pg/L)	Total Loadings (grams/year)
Celanese Canada Inc.	PR 0400	Intermediate	0.07	0.1
Chinook Group Ltd.	CO 0100	Final	34	0.01
Cornwall Chemicals Ltd.	PR 0100	Final	1.5	0.07
Dow Chemical Canada Inc.	CO 0200	Final	0.05	1.5
	CO 0500	Final	168	23.3
	CO 0600	Final	0.1	2.4
	PR 1200	Intermediate	2041	8.2
	PR 1600	Intermediate	109	0.4
	PR 1700	Intermediate	332	3.7
	PR 1900	Intermediate	22	1.3
	PR 2000	Intermediate	0.8	0.1
	PR 2100	Final	0.7	0.03
Du Pont Canada Inc. – Corunna	CO 0200	Final	0.3	1.1
	CO 0400	Intermediate	0.6	0.6
Du Pont Canada Inc. – Kingston	PR 1000	Intermediate	25	0.01
Du Pont Canada Inc. – Maitland	PR 0300	Intermediate	58	0.3
	CO 0400	Intermediate	38	0.4
	CO 0500	Intermediate	0.05	0.3
	CO 0700	Intermediate	0.3	5.1
Uniroyal Chemical Ltd.	CO 0900	Final	15	0.1

Note:
Total Loadings = Sum of all Found CDD / CDF congener groups (See explantation in the table below.)
TEQ = Toxicity Equivalence to 2,3,7,8–T4CDD (in picograms per Litre)
Final = Effluent Discharges directly to Watercourse
Intermediate = Effluent Discharges to Another Stream on the Plant Site Prior to Discharge to a Watercourse

International Toxicity Equivalency Factors (TEF) for PCDDs / PCDFs

Tetra, penta, hexa, hepta, and octa chlorodibenzo–p–dioxins (CDDs) and chlorodibenzofurans (CDFs) are identified by adding the T4, P5, H6, H7, and O8 prefixes to the CDD and CDF stems.

Congener Group / Isomer	TEF
2,3,7,8–T4CDD	1.00
1,2,3,7,8–P5CDD	0.50
2,3,7,8–H6CDDs (3)	0.10
1,2,3,4,6,7,8–H7CDD	0.010
1,2,3,4,6,7,8,9–O8CDD	0.001
2,3,7,8–T4CDF	0.1
2,3,4,7,8–P5CDF	0.5
1,2,3,7,8–P5CDF	0.05
2,3,7,8–H6CDFs (4)	0.10
2,3,7,8–H7CDFs (2)	0.010
1,2,3,4,6,7,8,9–O8CDF	0.001

( ) number in brackets indicates the number of isomers with 2,3,7,8 chlorine substitution.

TABLE 6 – Total Loadings of Found Parameters for the OCM Sector

ATG	PARAMETER	Number of Significant Dischargers **	Effluent (kg/day)	Intake (kg/day)
1	COD	4	43000	22000
2	Cyanide Total	2	14	5.7
4	Ammonia plus Ammonium	3	370	130
4	Nitrate+Nitrite	3	1100	820
4	Total Kjeldahl Nitrogen	4	2200	800
5	DOC	4	7400	4600
5	TOC	4	8400	11000
6	Total phosphorus	3	320	150
8	Total suspended solids	3	16000	11000
8	Volatile suspended solids	3	9900	7600
9	Aluminum	4	280	150
9	Beryllium	2	0.003	0.008
9	Boron	3	34	35
9	Cadmium	1	0.093	0.12
9	Chromium	3	11	7.5
9	Cobalt	2	6.1	5
9	Copper	2	30	12
9	Lead	2	43	24
9	Molybdenum	1	65	18
9	Nickel	3	19	12
9	Thallium	1	0.38	0.32
9	Vanadium	2	11	19
9	Zinc	2	460	22
10	Antimony	3	6	3.1
10	Arsenic	1	0.41	0.39
11	Chromium (hexavalent)	3	2.6	12
12	Mercury	3	0.19	0.086
13	Total Alkyl Lead	1	1	--
14	Phenolics (4AAP)	2	11	8.1
15	Sulphide	1	470	78

** Significant is defined as 10% or greater of the Total Loading.

TABLE 6 – Total Loadings of Found Parameters for the OCM Sector

ATG	PARAMETER	Number of Significant Dischargers **	Effluent (kg/day)	Intake (kg/day)
16	1,1,2,2–Tetrachloroethane	4	1.8	1.2
16	1,1,2–Trichloroethane	3	1.5	0.62
16	1,1–Dichloroethane	2	5.5	0.64
16	1,1–Dichloroethylene	3	1.8	0.73
16	1,2–Dichlorobenzene	2	0.82	0.23
16	1,2–Dichloroethane	2	7.7	0.78
16	1,2–Dichloropropane	3	2.5	0.52
16	1,3–Dichlorobenzene	2	0.67	0.19
16	1,4–Dichlorobenzene	3	0.54	0.14
16	Bromodichloromethane	3	2.4	0.95
16	Bromoform	3	2	1.2
16	Bromomethane	1	21	1.6
16	Carbon tetrachloride	2	16	1.2
16	Chlorobenzene	2	1.1	0.33
16	Chloroform	3	4.9	1.9
16	Chloromethane	1	180	16
16	Cis–1,3–Dichloropropylene	3	1.9	0.86
16	Dibromochloromethane	4	2	0.93
16	Ethylene dibromide	3	1.4	0.53
16	Methylene chloride	3	5.2	1.2
16	Tetrachloroethylene	2	8.3	0.94
16	Trans–1,2–Dichloroethylene	2	0.77	0.23
16	Trans–1,3–Dichloropropylene	2	1.9	0.63
16	Trichloroethylene	3	1.7	0.6
16	Trichlorofluoromethane	2	3.8	0.43
16	Vinyl chloride	3	7.8	4.4
17	Benzene	1	9.7	0.5
17	Ethylbenzene	2	3.3	0.55
17	Styrene	4	1.8	0.57
17	Toluene	2	6.1	0.47
17	m–Xylene and p–Xylene	3	1.9	0.94
17	o–Xylene	3	1.2	0.57
18	Acrolein	2	6.3	2.3
18	Acrylonitrile	1	33	1.3

** Significant is defined as 10% or greater of the Total Loading.

TABLE 6 – Total Loadings of Found Parameters for the OCM Sector

ATG	PARAMETER	Number of Significant Dischargers **	Effluent (kg/day)	Intake (kg/day)
19	1–Methylnaphthalene	1	0.077	0.066
19	2–Methylnaphthalene	1	0.053	0.045
19	2,6–Dinitrotoluene	1	1.1	0.46
19	2–Chloronaphthalene	1	1.3	1.4
19	Acenaphthene	1	0.025	0.021
19	Benzylbutylphthalate	2	0.11	0.12
19	Biphenyl	2	1.1	0.96
19	Bis(2–chloroethyl)ether	1	1.2	1.3
19	Bis(2–chloroisopropyl)ether	1	2.4	1.1
19	Bis(2–ethylhexyl) phthalate	2	1.6	1.6
19	Di–n–butyl phthalate	2	1.7	1.4
19	Di–n–octyl phthalate	1	0.001	<0.001
19	Diphenyl ether	2	0.56	0.11
19	Fluoranthene	1	0.002	<0.001
19	Fluorene	1	0.011	0.009
19	Indole	1	0.26	0.036
19	N–Nitrosodi–n–propylamine	1	0.78	0.84
19	Naphthalene	1	1.1	1.1
19	Phenanthrene	1	0.011	0.009
20	2,3,4,5–Tetrachlorophenol	1	0.39	0.38
20	2,3,4–Trichlorophenol	1	0.43	0.40
20	2,6–Dichlorophenol	1	0.44	0.50
20	Phenol	1	2.3	2.1
20	m–Cresol	1	0.1	0.09
20	o–Cresol	1	0.059	0.051
20	p–Cresol	1	0.12	0.11
23	1,2,3,4–Tetrachlorobenzene	1	<0.001	0.002
23	1,2,3,5–Tetrachlorobenzene	1	<0.001	<0.001
23	1,2,3–Trichlorobenzene	1	<0.001	0.002
23	1,2,4,5–Tetrachlorobenzene	1	0.006	0.006
23	1,2,4–Trichlorobenzene	2	0.05	0.026
23	2,4,5–Trichlorotoluene	1	0.016	0.01
23	Hexachlorobenzene	3	0.008	0.006
23	Hexachlorobutadiene	2	0.02	0.011
23	Hexachlorocyclopentadiene	1	0.003	0.004
23	Hexachloroethane	2	0.019	0.008
23	Octachlorostyrene	1	0.008	0.009
23	Pentachlorobenzene	2	<0.001	0.001
24	Total PCDDs / PCDFs	6	28.6 g/year	<0.1 g/year
25	Oil and grease	4	3400	2500
27	PCBT	2	<0.001	<0.001

** Significant is defined as 10% or greater of the Total Loading.

VI APPENDICES

APPENDIX A

EXPLANATORY NOTES

	PAGE
USE OF DATA	A-2
CONCENTRATION TABLES	A-2
LOADING TABLES	A-5
DEFINITIONS	A-7
KEY TO ABBREVIATIONS	A-8
Table A-1 REGULATION METHOD DETECTION LIMITS	A-9
Table A-2 ENVIRONMENTAL FATE CLASSIFICATION	A-11
Table A-3 SUMMARY OF AVAILABLE PWQO/G	A-14
Table A-4 SUMMARY OF REMARK CODES	A-18

APPENDIX A - EXPLANATORY NOTES

USE OF DATA

Because values reported as "less than" the detection limit were assigned the value of the detection limit for the purposes of calculating averages, the reported concentration and loading average data in this report may be biased on the high side especially for parameters where the concentration averages were within five times the RMDL value.

To make meaningful data comparisons, the reader should be aware of the confidence interval associated with each data point. To estimate this interval requires knowledge of the number of data points on which the average was based and its proximity to the RMDL.

A single value at the detection limit (RMDL), will have a 95% confidence interval of 1RMDL $\pm$ 2 standard deviations or 1RMDL$\pm$0.67RMDL or $\pm$ 67%. At 5RMDL, assuming the analytical error to be constant, the confidence interval would be 5RMDL$\pm$0.67RMDL or 13%.

For values which are averages of several analytical results, the confidence interval around the reported average becomes narrowed by a factor of the square root of the number of observations used to calculate the average.

CONCENTRATION TABLES (APPENDIX E)

DEFINITION OF FOUND

The following edit rules were used to determine reportable parameters:

- data for a basic core group of 12 conventional parameters were reported in the twelve-month tables (Appendix E) irrespective of concentration levels for all monitored plant effluents. These parameters included:

ATG 1	**COD**
ATG 3	**pH**
ATG 4	**Ammonia/Ammonium**
ATG 4	**Nitrate/Nitrite**
ATG 4	**Total Kjeldahl Nitrogen**
ATG 5	**Dissolved Organic Carbon (DOC)**
ATG 5	**Total Organic Carbon (TOC)**
ATG 6	**Total phosphorus**
ATG 7	**Specific Conductance**
ATG 8	**Total Suspended Solids**
ATG 9	**Volatile Suspended Solids (VSS)**
ATG 25	**Oil & Grease**

- all other monitored parameters were listed in the twelve-month tables as **found** unless a statistical proportion of 0.9 of the CONCENTRATION data results was less than the Regulation Method Detection Limit (RMDL) - referred to as the **90/10 Edit Rule**

- for small numbers of samples, the 90/10 edit was modified to include listing of parameters as found unless the following minimum number of values at **less than RMDL** were reported: 2 of 2; 3 of 3; 3 of 4; 3 of 5 or 4 of 6.

- parameters with single analytical values were not included in the tables

- where a parameter was listed for a stream on the basis of the 90/10 edit, it was also listed for all other streams monitored at the plant site even though the parameter might not have qualified as "found" in those streams

- parameters with reported concentration values less than detection levels, normally considered as non-detected, could be listed as "found" by the 90/10 edit rule for cases where the laboratory detection levels were above RMDL values

- the complete list of monitored parameters together with the RMDL for each parameter is shown in Table A-1, Appendix A

STREAM CODES

- identify the types of streams monitored:

IN = intake water to plant site -- direct from a natural watercourse or municipal
PR = process effluent continuously discharged
BA = process effluent intermittently discharged
OT = non-contact cooling water
CO = combined effluent -- a blend of process and non-contact cooling water
ST = storm water effluent
WA = process effluent from a waste disposal site
EM = emergency overflow effluent

STREAM NUMBERS

- identify individual streams and sampling locations for the site

PARAMETERS

DOC = dissolved organic carbon
TOC = total organic carbon -- includes DOC and solids material if present
COD = chemical oxygen demand -- measure of the amount of oxidizable material
FTFLOW = stream flow volume discharged per day

CONCENTRATION TABLES (APPENDIX E)

The following table illustrates the relative magnitude of the concentration units used in the UNIT Column with a comparison in terms of units of time to put them in clearer perspective:

mg/L = milligrams/litre = 0.001 grams/litre ($1x10^{-3}$) = parts per million
(1 minute in 2 years)

ug/L = microgram/litre = 0.000001 grams/litre ($1x10^{-6}$) = parts per billion
(1 second in 32 years)

ng/L = nanograms/litre = 0.000000001 grams/litre ($1x10^{-9}$) = parts per trillion
(1 second in 320 centuries)

pg/L = picrograms/litre = 0.000000000001 grams/litre ($1x10^{-12}$) = parts per quadrillion
(1 second in 32 000 millenia)

m^3 = cubic metres = 1000 kg = 220 gallons (Imperial)

uS/cm = microSiemens/centimetre
- typical laboratory conductivity water 5 uS/cm
- normal potable water 100-300 uS/cm
- measure of the dissolved solids in the effluent

CALCULATION OF AVERAGE CONCENTRATION VALUES

- concentration values qualified by the following remark codes were excluded from the calculations:

>	data values greater than
I	interference
MP	multiphase sample
SIP	sample improperly preserved
SID	sample identification questionable
UCR	data unreliable
N/A	no data will be reported - zero values/blank fields only
!IN	no data; insufficient volume due to inspection
!NM	no effluent

- zero or blank concentration values were omitted from the calculation of averages

- concentration values less than RMDL/10 were converted to RMDL/10 for use in the calculation of averages

- values reported with "**< WE - no measurable response**" remark code were used as reported to calculate averages and for the purposes of the 90/10 edit rule

- for three plant sites, parameters shown as found on the basis of a significant proportion of the data being reported as greater than ten times the RMDL with an accompanying "<WE" remark code, are highlighted in the tables - the presence or absence of the parameters for those cases is not certain

LOADING TABLES (APPENDIX E)

CALCULATION OF LOADINGS

(i) Effluents

- daily loading was calculated as the product of daily flow and daily concentration
- daily loadings were summed over a monthly period and divided by the number of results to produce a monthly average loading
- twelve-month average loadings were calculated by summing daily data over the twelve month period and dividing by the number of results

(ii) Intake Water

- intake water sampling and flow measurement were not regulated requirements
- intake sampling ranged from none for six plants up to a level consistent with effluent frequencies but was typically done 12 times over the twelve-month reporting period by most of the plants
- intake loading was calculated as for effluent loading where intake water flows were provided
- if no intake water flow was provided but the total daily plant effluent flow was available, intake loading was calculated as the product of intake concentration and the corresponding daily plant effluent flow
- if the total plant effluent flow was available only monthly (in conjunction with OTCW monitoring), intake loading was calculated as the product of the average twelve-month concentration and flow

"TOTAL" COLUMN IN THE LOADING TABLE

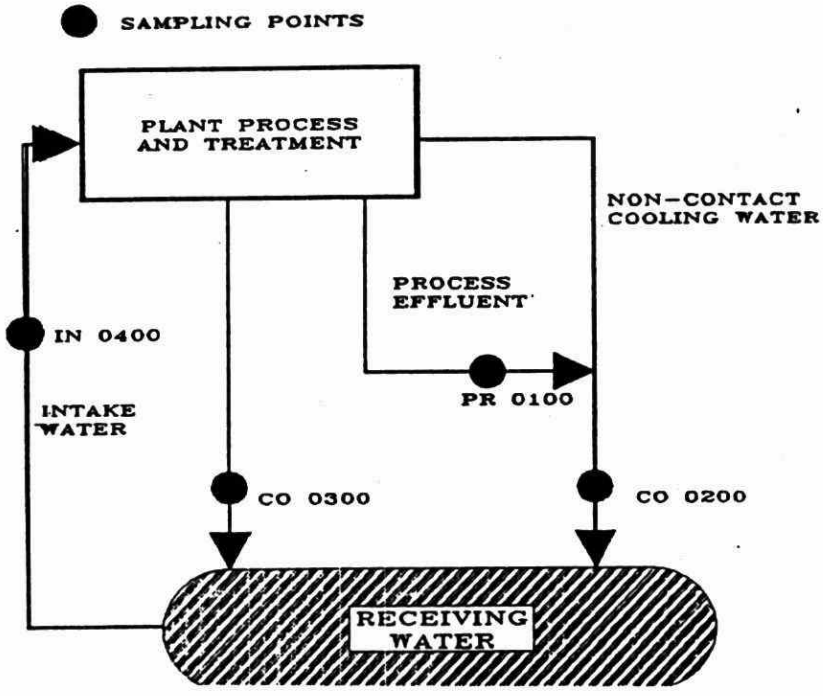
The loading under the TOTAL COLUMN is the total gross loading discharged to the environment from the plant site. Loadings entering the site in the intake water are not subtracted from the plant total but are shown separately in the tables.

For single effluent plants the loading reported in the TOTAL COLUMN is the same as that reported for the single effluent.

For multi-effluent sites the loading in the TOTAL COLUMN is the sum of the loading totals shown for individual plant effluents.

NOTE: In some cases monitoring was carried out on effluents upstream of dilution as well as on the combined streams. The diagram illustrates the case.

TYPICAL FLOW CONTINUITY FOR MULTI-EFFLUENT SITES



The total loading shown under the TOTAL COLUMN for a given parameter would be the the sum of the loading in CO0300 and either one of the two values reported for stream PR0100 or CO0200 if the contaminants were common to both streams. To sum loadings in both PR0100 and CO0200 for the total discharge for the site would be double accounting.

The "SAMPLING POINTS" footnote at the end of each twelve-month concentration or loading table indicates the destination of each monitored effluent.

DEFINITIONS

ANALYTICAL METHOD DETECTION LIMIT (MDL) - the minimum concentration of a parameter necessary to infer its presence in a sample with a level of confidence greater than 99 percent when the concentration is calculated according to the procedure set out in the Ministry document, "Estimation of Analytical Method Detection Limits - ISBN -0-7729-4117-3.

The MDL for a parameter is defined as three times the standard deviation as determined by eight or ten repeat determinations on a dilute solution.

BIOACCUMULATIVE TOXIC SUBSTANCE - a toxic substance with a Bioconcentration Factor (BCF) greater than 1000 or an octanol-water partition coefficient (log K) greater than 4.

ONTARIO DRINKING WATER OBJECTIVES (ODWO) - are maximum allowable concentration guidelines based on the consumption of 1.5 litres per day by a 70 kg person for 70 years.

ODWO MAXIMUM ACCEPTABLE CONCENTRATION - the presence in a drinking water of a substance at a level in excess of its maximum acceptable concentration shall be grounds for rejection of the water unless effective treatment is available.

PERSISTENT TOXIC SUBSTANCE - a toxic substance having a half-life in water equal to or greater than 56 days.

PROVINCIAL WATER QUALITY OBJECTIVE (PWQO) - is a numerical or narrative criterion designed for the protection of aquatic life and recreation in and on the water. It is a desirable level of water quality that the Ministry strives to maintain in surface waters of the Province.

PROVINCIAL WATER QUALITY GUIDELINE (PWQG) - represents the best available criterion when there is not enough information to meet the minimum requirements for setting a PWQO.

REGULATION METHOD DETECTION LIMIT (RMDL) is the maximum allowable MDL for a laboratory providing data under the regulation.

TOXIC SUBSTANCE - a substance which can cause death, disease, behavioural abnormalities, cancer, genetic mutations, physiological or reproductive malfunctions, or physical deformities in any organism or its offspring, or which can become poisonous after concentration in the food chain or in combination with other substances.

99TH PERCENTILE - a statistically determined value for a data set of known distribution, such that 99% of the data values making up the set will fall below the 99th percentile value.

KEY TO ABBREVIATIONS

AVG	- average value of the data reported (based on 365, 156, 52, 12 or 4 data points)
CTRLPT	- control point - sample point designated by regulation
D	- number of data points above RMDL
LTA	- long term average (same as AVG)
MAX	- highest daily value (either concentration or loading)
MIN	- lowest daily value (either concentration or loading)
MOE1	- Ministry of the Environment sample
N	- number of reported data points
SCLASS	- stream class - type of effluent stream (see Appendix A)
STD DEV	- standard deviation
99th PER	- the ninety-ninth percentile

Table A–1
Regulation Method Detection Limits (RMDL) for all Parameters Monitored by the OCM Sector

ATG	PARAMETER	RMDL	UNIT	ATG	PARAMETER	RMDL	UNIT
1	COD	10.0	mg/L	16	1,3–Dichlorobenzene	1.1	ug/L
2	Cyanide Total	0.005	mg/L	16	1,4–Dichlorobenzene	1.7	ug/L
3	Hydrogen ion (pH)			16	Bromodichloromethane	0.8	ug/L
4	Ammonia plus Ammonium	0.25	mg/L	16	Bromoform	3.7	ug/L
4	Nitrate+Nitrite	0.25	mg/L	16	Bromomethane	3.7	ug/L
4	Total Kjeldahl nitrogen	0.5	mg/L	16	Carbon tetrachloride	1.3	ug/L
5	DOC	0.5	mg/L	16	Chlorobenzene	0.7	ug/L
5	TOC	5.0	mg/L	16	Chloroform	0.7	ug/L
6	Total phosphorus	0.1	mg/L	16	Chloromethane	3.7	ug/L
7	Specific conductance ***	500.0	uS/cm	16	Cis–1,3–Dichloropropylene	1.4	ug/L
8	Total suspended solids	5.0	mg/L	16	Dibromochloromethane	1.1	ug/L
8	VSS	10.0	mg/L	16	Ethylene dibromide	1.0	ug/L
9	Aluminum	30.0	ug/L	16	Methylene chloride	1.3	ug/L
9	Beryllium	10.0	ug/L	16	Tetrachloroethylene	1.1	ug/L
9	Boron	50.0	ug/L	16	Trans–1,2–Dichloroethylene	1.4	ug/L
9	Cadmium	2.0	ug/L	16	Trans–1,3–Dichloropropylene	1.4	ug/L
9	Chromium	20.0	ug/L	16	Trichloroethylene	1.9	ug/L
9	Cobalt	20.0	ug/L	16	Trichlorofluoromethane	1.0	ug/L
9	Copper	10.0	ug/L	16	Vinyl chloride	4.0	ug/L
9	Lead	30.0	ug/L	17	Benzene	0.5	ug/L
9	Molybdenum	20.0	ug/L	17	Ethylbenzene	0.6	ug/L
9	Nickel	20.0	ug/L	17	Styrene	0.5	ug/L
9	Silver	30.0	ug/L	17	Toluene	0.5	ug/L
9	Thallium	30.0	ug/L	17	m–Xylene	1.1	ug/L
9	Vanadium	30.0	ug/L	17	m–Xylene and p–Xylene	1.1	ug/L
9	Zinc	10.0	ug/L	17	o–Xylene	0.5	ug/L
10	Antimony	5.0	ug/L	17	p–Xylene	1.1	ug/L
10	Arsenic	5.0	ug/L	18	Acrolein	4.0	ug/L
10	Selenium	5.0	ug/L	18	Acrylonitrile	4.2	ug/L
11	Chromium (hexavalent)	10.0	ug/L	19	1–Chloronaphthalene	2.5	ug/L
12	Mercury	0.1	ug/L	19	1–Methylnaphthalene	3.2	ug/L
13	Tetra–alkyl lead (Total)	2.0	ug/L	19	2,4–Dinitrotoluene	0.8	ug/L
13	Tri–alkyl lead (Total)	2.0	ug/L	19	2,6–Dinitrotoluene	0.7	ug/L
14	Phenolics (4AAP)	2.0	ug/L	19	2–Chloronaphthalene	1.8	ug/L
15	Sulphide	20.0	ug/L	19	2–Methylnaphthalene	2.2	ug/L
16	1,1,2,2–Tetrachloroethane	4.3	ug/L	19	4–Bromophenyl phenyl ether	0.3	ug/L
16	1,1,2–Trichloroethane	0.6	ug/L	19	4–Chlorophenyl phenyl ether	0.9	ug/L
16	1,1–Dichloroethane	0.8	ug/L	19	5–nitro, Acenaphthene	4.3	ug/L
16	1,1–Dichloroethylene	2.8	ug/L	19	Acenaphthene	1.3	ug/L
16	1,2–Dichlorobenzene	1.4	ug/L	19	Acenaphthylene	1.4	ug/L
16	1,2–Dichloroethane	0.8	ug/L	19	Anthracene	1.2	ug/L
16	1,2–Dichloropropane	0.9	ug/L	19	Benz(a)anthracene	0.5	ug/L

*** Arbitrary base line value

Table A–1
Regulation Method Detection Limits (RMDL) for all Parameters Monitored by the OCM Sector

ATG	PARAMETER	RMDL	UNIT	ATG	PARAMETER	RMDL	UNIT
19	Benzo(a)pyrene	0.6	ug/L	20	2,4–Dinitrophenol	42.0	ug/L
19	Benzo(b)fluoranthene	0.7	ug/L	20	2,6–Dichlorophenol	2.0	ug/L
19	Benzo(g,h,i)perylene	0.7	ug/L	20	2–Chlorophenol	3.7	ug/L
19	Benzo(k)fluoranthene	0.7	ug/L	20	4,6–Dinitro–o–cresol	24.0	ug/L
19	Benzylbutylphthalate	0.6	ug/L	20	4–Chloro–3–methylphenol	1.5	ug/L
19	Biphenyl	0.6	ug/L	20	4–Nitrophenol	1.4	ug/L
19	Bis(2–chloroethoxy)methane	3.5	ug/L	20	Pentachlorophenol	1.3	ug/L
19	Bis(2–chloroethyl)ether	4.4	ug/L	20	Phenol	2.4	ug/L
19	Bis(2–chloroisopropyl)ether	2.2	ug/L	20	m–Cresol	3.4	ug/L
19	Bis(2–ethylhexyl) phthalate	2.2	ug/L	20	o–Cresol	3.7	ug/L
19	Camphene	3.5	ug/L	20	p–Cresol	3.5	ug/L
19	Chrysene	0.3	ug/L	23	1,2,3,4–Tetrachlorobenzene	10.0	ng/L
19	Di–n–butyl phthalate	3.8	ug/L	23	1,2,3,5–Tetrachlorobenzene	10.0	ng/L
19	Di–n–octyl phthalate	2.0	ug/L	23	1,2,3–Trichlorobenzene	10.0	ng/L
19	Dibenz(a,h)anthracene	1.3	ug/L	23	1,2,4,5–Tetrachlorobenzene	10.0	ng/L
19	Diphenyl ether	0.4	ug/L	23	1,2,4–Trichlorobenzene	10.0	ng/L
19	Diphenylamine	14.0	ug/L	23	2,4,5–Trichlorotoluene	10.0	ng/L
19	Fluoranthene	0.4	ug/L	23	Hexachlorobenzene	10.0	ng/L
19	Fluorene	1.7	ug/L	23	Hexachlorobutadiene	10.0	ng/L
19	Indeno(1,2,3–cd)pyrene	1.3	ug/L	23	Hexachlorocyclopentadiene	10.0	ng/L
19	Indole	1.9	ug/L	23	Hexachloroethane	10.0	ng/L
19	N–Nitrosodi–n–propylamine	3.1	ug/L	23	Octachlorostyrene	10.0	ng/L
19	N–Nitrosodiphenylamine	14.0	ug/L	23	Pentachlorobenzene	10.0	ng/L
19	Naphthalene	1.6	ug/L	24	2,3,7,8 T4CDD	20.0	pg/L
19	Perylene	1.5	ug/L	24	Total O8CDD	30.0	pg/L
19	Phenanthrene	0.4	ug/L	24	Total O8CDF	30.0	pg/L
19	Pyrene	0.4	ug/L	24	Total H6CDD	30.0	pg/L
20	2,3,4,5–Tetrachlorophenol	0.4	ug/L	24	Total H6CDF	20.0	pg/L
20	2,3,4,6–Tetrachlorophenol	2.8	ug/L	24	Total H7CDD	30.0	pg/L
20	2,3,4–Trichlorophenol	0.6	ug/L	24	Total H7CDF	30.0	pg/L
20	2,3,5,6–Tetrachlorophenol	1.6	ug/L	24	Total P5CDD	20.0	pg/L
20	2,3,5–Trichlorophenol	1.3	ug/L	24	Total P5CDF	15.0	pg/L
20	2,4,5–Trichlorophenol	1.3	ug/L	24	Total T4CDD	20.0	pg/L
20	2,4,6–Trichlorophenol	1.3	ug/L	24	Total T4CDF	15.0	pg/L
20	2,4–Dichlorophenol	1.7	ug/L	25	Oil and grease	1.0	mg/L
20	2,4–Dimethylphenol	7.3	ug/L	27	PCBT	0.1	ug/L

TABLE A–2 – Environmental Fate Classification of Parameters Monitored by the OCM Sector

ATG	PARAMETER	RMDL	UNIT	P	B	NB	NP
1	COD	10.0	mg/L	*	*	*	*
2	Cyanide Total	0.005	mg/L	*	*	*	*
3	Hydrogen ion (pH)			*	*	*	*
4	Ammonia plus Ammonium	0.25	mg/L	*	*	*	*
4	Total Kjeldahl nitrogen	0.5	mg/L	*	*	*	*
4	Nitrate+Nitrite	0.25	mg/L	*	*	*	*
5	DOC	0.5	mg/L	*	*	*	*
5	TOC	5.0	mg/L	*	*	*	*
6	Total phosphorus	0.1	mg/L	*	*	*	*
7	Specific conductance	500.0	uS/cm	*	*	*	*
8	Total suspended solids	5.0	mg/L	*	*	*	*
8	Volatile suspended solids	10.0	mg/L	*	*	*	*
9	Aluminum	30.0	ug/L				
9	Beryllium	10.0	ug/L				
9	Boron	50.0	ug/L				
9	Cadmium	2.0	ug/L				
9	Chromium	20.0	ug/L				
9	Cobalt	20.0	ug/L				
9	Copper	10.0	ug/L				
9	Lead	30.0	ug/L				
9	Molybdenum	20.0	ug/L				
9	Nickel	20.0	ug/L				
9	Silver	30.0	ug/L				
9	Thallium	30.0	ug/L				
9	Vanadium	30.0	ug/L				
9	Zinc	10.0	ug/L				
10	Antimony	5.0	ug/L				
10	Arsenic	5.0	ug/L				
10	Selenium	5.0	ug/L				
11	Chromium (hexavalent)	10.0	ug/L				
12	Mercury	0.1	ug/L				
13	Tetra–alkyl lead (Total)	2.0	ug/L				
13	Tri–alkyl lead (Total)	2.0	ug/L				
14	Phenolics (4AAP)	2.0	ug/L	*	*	*	*
15	Sulphide	20.0	ug/L	*	*	*	*
16	1,1,2,2–Tetrachloroethane	4.3	ug/L				
16	1,1,2–Trichloroethane	0.6	ug/L				
16	1,1–Dichloroethane	0.8	ug/L				
16	1,1–Dichloroethylene	2.8	ug/L				
16	1,2–Dichlorobenzene	1.4	ug/L				
16	1,2–Dichloroethane	0.8	ug/L				
16	1,2–Dichloropropane	0.9	ug/L				
16	1,3–Dichlorobenzene	1.1	ug/L				
16	1,4–Dichlorobenzene	1.7	ug/L				
16	Bromodichloromethane	0.8	ug/L				
16	Bromoform	3.7	ug/L				
16	Bromomethane	3.7	ug/L				
16	Carbon tetrachloride	1.3	ug/L				
16	Chlorobenzene	0.7	ug/L				
16	Chloroform	0.7	ug/L				
16	Chloromethane	3.7	ug/L				
16	Cis–1,3–Dichloropropylene	1.4	ug/L				
16	Dibromochloromethane	1.1	ug/L				
16	Ethylene dibromide	1.0	ug/L				
16	Methylene chloride	1.3	ug/L				

TABLE A–2 – Environmental Fate Classification of Parameters Monitored by the OCM Sector

ATG	PARAMETER	RMDL	UNIT	P	B	NB	NP
16	Tetrachloroethylene	1.1	ug/L			■	■
16	Trans–1,2–Dichloroethylene	1.4	ug/L	■		■	
16	Trans–1,3–Dichloropropylene	1.4	ug/L			■	■
16	Trichloroethylene	1.9	ug/L			■	■
16	Trichlorofluoromethane	1.0	ug/L	■		■	
16	Vinyl chloride	4.0	ug/L			■	■
17	Benzene	0.5	ug/L			■	■
17	Ethylbenzene	0.6	ug/L			■	■
17	Styrene	0.5	ug/L			■	
17	Toluene	0.5	ug/L		■		
17	o–Xylene	0.5	ug/L			■	
17	m–Xylene	1.1	ug/L			■	
17	p–Xylene	1.1	ug/L			■	
17	m–Xylene and p–Xylene	1.1	ug/L			■	
18	Acrolein	4.0	ug/L			■	
18	Acrylonitrile	4.2	ug/L				
19	Acenaphthene	1.3	ug/L			■	■
19	5–nitro, Acenaphthene	4.3	ug/L		■		■
19	Acenaphthylene	1.4	ug/L	■	■		
19	Anthracene	1.2	ug/L	■	■		
19	Benz(a)anthracene	0.5	ug/L	■	■		
19	Benzo(a)pyrene	0.6	ug/L	■	■		
19	Benzo(b)fluoranthene	0.7	ug/L	■	■		
19	Benzo(g,h,i)perylene	0.7	ug/L	■	■		
19	Benzo(k)fluoranthene	0.7	ug/L	■	■		
19	Camphene	3.5	ug/L	■	■		
19	1–Chloronaphthalene	2.5	ug/L		■		
19	2–Chloronaphthalene	1.8	ug/L	■	■		
19	Chrysene	0.3	ug/L	■	■		
19	Dibenz(a,h)anthracene	1.3	ug/L	■	■		
19	Fluoranthene	0.4	ug/L	■	■		
19	Fluorene	1.7	ug/L				■
19	Indeno(1,2,3–cd)pyrene	1.3	ug/L	■	■		
19	Indole	1.9	ug/L	■		■	
19	1–Methylnaphthalene	3.2	ug/L			■	■
19	2–Methylnaphthalene	2.2	ug/L		■		■
19	Naphthalene	1.6	ug/L			■	
19	Perylene	1.5	ug/L	■	■		
19	Phenanthrene	0.4	ug/L	■	■		
19	Pyrene	0.4	ug/L	■	■		
19	Benzylbutylphthalate	0.6	ug/L				■
19	Bis(2–ethylhexyl) phthalate	2.2	ug/L		■		■
19	Di–n–butyl phthalate	3.8	ug/L		■		■
19	Di–n–octyl phthalate	2.0	ug/L				■
19	4–Bromophenyl phenyl ether	0.3	ug/L	■	■		
19	4–Chlorophenyl phenyl ether	0.9	ug/L	■	■		
19	Bis(2–chloroisopropyl)ether	2.2	ug/L	■			■
19	Bis(2–chloroethyl)ether	4.4	ug/L	■			■
19	2,4–Dinitrotoluene	0.8	ug/L			■	■
19	2,6–Dinitrotoluene	0.7	ug/L			■	
19	Bis(2–chloroethoxy)methane	3.5	ug/L	■		■	
19	Diphenylamine	14.0	ug/L	■		■	
19	Diphenyl ether	0.4	ug/L	■	■		
19	N–Nitrosodiphenylamine	14.0	ug/L			■	■
19	N–Nitrosodi–n–propylamine	3.1	ug/L			■	■
19	Biphenyl	0.6	ug/L		■		■

TABLE A–2 – Environmental Fate Classification of Parameters Monitored by the OCM Sector

ATG	PARAMETER	RMDL	UNIT	P	B	NB	NP
20	2,3,4,5–Tetrachlorophenol	0.4	ug/L		■		■
20	2,3,4,6–Tetrachlorophenol	2.8	ug/L			■	■
20	2,3,5,6–Tetrachlorophenol	1.6	ug/L		■		■
20	2,3,4–Trichlorophenol	0.6	ug/L			■	■
20	2,3,5–Trichlorophenol	1.3	ug/L			■	■
20	2,4,5–Trichlorophenol	1.3	ug/L			■	■
20	2,4,6–Trichlorophenol	1.3	ug/L				■
20	2,4–Dimethylphenol	7.3	ug/L			■	■
20	2,4–Dinitrophenol	42.0	ug/L	■			
20	2,4–Dichlorophenol	1.7	ug/L				■
20	2,6–Dichlorophenol	2.0	ug/L			■	■
20	4,6–Dinitro–o–cresol	24.0	ug/L				■
20	2–Chlorophenol	3.7	ug/L			■	■
20	4–Chloro–3–methylphenol	1.5	ug/L			■	■
20	4–Nitrophenol	1.4	ug/L			■	■
20	m–Cresol	3.4	ug/L			■	■
20	o–Cresol	3.7	ug/L			■	■
20	p–Cresol	3.5	ug/L			■	■
20	Pentachlorophenol	1.3	ug/L	■	■		
20	Phenol	2.4	ug/L			■	■
23	1,2,3,4–Tetrachlorobenzene	10.0	ng/L	■	■		
23	1,2,3,5–Tetrachlorobenzene	10.0	ng/L	■	■		
23	1,2,4,5–Tetrachlorobenzene	10.0	ng/L	■	■		
23	1,2,3–Trichlorobenzene	10.0	ng/L			■	■
23	1,2,4–Trichlorobenzene	10.0	ng/L			■	■
23	2,4,5–Trichlorotoluene	10.0	ng/L	■	■		
23	Hexachlorobenzene	10.0	ng/L	■	■		
23	Hexachlorobutadiene	10.0	ng/L			■	
23	Hexachlorocyclopentadiene	10.0	ng/L			■	■
23	Hexachloroethane	10.0	ng/L	■		■	
23	Octachlorostyrene	10.0	ng/L		■		
23	Pentachlorobenzene	10.0	ng/L	■	■		
24	2,3,7,8 T4CDD	20.0	pg/L	■	■		
24	Total O8CDD	30.0	pg/L	■	■		
24	Total 08CDF	30.0	pg/L	■	■		
24	Total T4CDD	20.0	pg/L	■	■		
24	Total H7CDF	30.0	pg/L	■	■		
24	Total P5CDD	20.0	pg/L	■	■		
24	Total H6CDF	20.0	pg/L	■	■		
24	Total H7CDD	30.0	pg/L	■	■		
24	Total P5CDF	15.0	pg/L	■	■		
24	Total H6CDD	30.0	pg/L	■	■		
24	Total T4CDF	15.0	pg/L	■	■		
25	Oil and grease	1.0	mg/L	*	*	*	*
27	PCBT	0.1	ug/L	■	■		

Explanatory Notes :
Shading indicates the presence of the following attributes;

"P" = Persistent
"B" = Bioaccumulative
"NB" = Non – Bioaccumulative
"NP" = Non – Persistent
* = Not Applicable – Generic Group (includes measurement of more than one contaminant)
blank = Information Not Available

TABLE A-3 SUMMARY OF AVAILABLE PWQO/G - JULY 1992

SUBSTANCE	CAS NUMBER	EMPPL LIST.	PWQO STATUS	VALUE (μg/L)
1,1,2,2-tetrachloroethane	79345	/87	PROPOSED PWQG	50
1,1,2-trichloroethane	79005	/87	PROPOSED PWQG	800
1,1-dichloroethane	75343	/87	PROPOSED PWQG	200
1,1-dichloroethylene	75354	/87	PROPOSED PWQG	40
1,2,3,4-tetrachlorobenzene	634662	/87	PWQO	0.1
1,2,3,5-tetrachlorobenzene	634902	/87	PWQO	0.1
1,2,3-trichlorobenzene	87616	/87	PWQO	0.9
1,2,4,5-tetrachlorobenzene	95943	/87	PWQO	0.15
1,2,4-trichlorobenzene	120821	/87	PWQO	0.5
1,2-dichlorobenzene	95501	/87	PWQO	2.5
1,2-dichloroethane	107062	/87	PROPOSED PWQG	90
1,3-dichlorobenzene	541731	/87	PWQO	2.5
1,4-dichlorobenzene	106467	/87	PWQO	4
1-methylnaphthalene	90120	/87	PROPOSED PWQG	2
2,3,4,5-tetrachlorophenol	4901513	/87	PWQO	1
2,3,4,6-tetrachlorophenol	58902	/87	PWQO	1
2,3,4-trichlorophenol	15950660	/87	PWQO	18
2,3,5,6-tetrachlorophenol	935955	/87	PWQO	1
2,3,5-trichlorophenol	933788	/87	PWQO	18
2,3,7,8-tetrachlorodibenzo-p-dioxin	1746016	/87	PROPOSED PWQG	0.1 pg/L
2,4,5-trichlorophenol	95954	/87	PWQO	18
2,4,6-trichlorophenol	88062	/87	PWQO	18
2,4-dichlorophenol	120832	/87	PWQO	0.2
2,4-dimethylphenol	105679	/87	PROPOSED PWQG	10.5
2,4-dinitrotoluene	121142	/87	PROPOSED PWQG	4
2,6-dichlorophenol	87650	/87	PWQO	0.2
2,6-dimethylphenol	576261	/88	PROPOSED PWQG	8.4
2,6-dinitrotoluene	606202	/87	PROPOSED PWQG	3
2-methylnaphthalene	91576	/87	PROPOSED PWQG	2
2-nitrophenol	88755	/88	PROPOSED PWQG	0.5
3,4-dimethylphenol	95658	/88	PROPOSED PWQG	17.5
4,6-dinitro-o-cresol	534521	/87	PROPOSED PWQG	0.2
4-nitrophenol	100027	/87	PROPOSED PWQG	48
abietic acid	514103	/87	PWQG (j)	(a), (j)
aluminum	7429905	/87	PWQG	(a)
aniline	62533	/87	PROPOSED PWQG	2
antimony	7440360	/87	PROPOSED PWQG	7
Aroclor 1016*	12674112	/87	PWQO (j)	(j)
Aroclor 1221*	11104282	/87	PWQO (j)	(j)
Aroclor 1232*	11141165	/87	PWQO(j)	(j)
Aroclor 1242*	53469219	/87	PWQO (j)	(j)
Aroclor 1248*	12672296	/87	PWQO (j)	(j)
Aroclor 1254*	11097691	/87	PWQO (j)	(j)
Aroclor 1260*	11096825	/87	PWQO (j)	(j)

TABLE A-3 (cont'd) SUMMARY OF AVAILABLE PWQO/G - JULY 1992

SUBSTANCE	CAS NUMBER	EMPPL LIST.	PWQO STATUS	VALUE (μg/L)
arsenic	7440382	/87	PWQO	100
benzene	71432	/87	PROPOSED PWQG	100
beryllium	7440417	/87	PWQO	(a)
bis(2-ethylhexyl)phthalate	117817	/87	PWQO (f)	(f)
cadmium	7440439	/87	PWQO	0.2
cadmium (revised)	7440439	/87	PROPOSED PWQO	(a)
chlorobenzene (monochlorobenzene)	108907	/87	PWQO	15
chromium	7440473	/87	PWQO	100
cis-1,2-dichloroethylene	156592	/87	PROPOSED PWQG	200
cobalt	7440484	/87	PROPOSED PWQG	0.4
copper	7440508	/87	PWQO	5
copper (revised)	7440508	/87	PROPOSED PWQO	(a)
dehydroabietic acid	1740198	/87	PWQG	(a)
Di-n-butylphthalate	84742	/87	PWQO (g)	(g)
di-n-octylphthalate	117840	/88	PWQO	(h)
diethylphthalate (DEP)	84662	/88	PWQO	(h)
dimethylphenols (Isomer Nonspecific)	1300716	/88	PROPOSED PWQG	(c)
dimethylphthalate	131113	/89	PWQO	(h)
ethylbenzene	100414	/88	PROPOSED PWQG	8
hexachlorobenzene	118741	/87	PWQO	0.0065
hexachlorobutadiene	87683	/87	PROPOSED PWQG	0.02
hydrogen sulphide	7783064	/88	PWQO	2
isopimaric acid	5835267	/87	PWQG (j)	(a), (j)
lead	7439921	/87	PWQO	(a)
lead (revised)	7439921	/87	PROPOSED PWQO	(a)
levopimaric acid	79549	/87	PWQG (j)	(a), (j)
Lindane (gamma - 1,2,3,4,5,6-hexachlorocyclohexane)	58899	/88	PWQO	0.01
m-cresol	108394	/87	PROPOSED PWQG	1
m-xylene	108383	/87	PROPOSED PWQG	2
mercury	7439976	/87	PWQO	0.2
neoabietic acid	471772	/87	PWQG (j)	(a), (j)
nickel	7440020	/87	PWQO	25
nitrobenzene	98953	/88	PROPOSED PWQG	0.02
o-chlorophenol (2-chlorophenol)	95578	/87	PWQO	(d)
o-cresol	95487	/87	PROPOSED PWQG	1
o-xylene	95476	/87	PROPOSED PWQG	0.7
p-cresol	106445	/87	PROPOSED PWQG	1
p-xylene	106423	/87	PROPOSED PWQG	30
pentachlorobenzene	608935	/87	PWQO	0.03
pentachlorophenol	87865	/87	PWQO	0.5
phenols	108952	/87	PWQO	1
pimaric acid	127275	/87	PWQG (j)	(a), (j)
selenium	7782492	/87	PWQO	100
silver	7440224	/87	PWQO	0.1

TABLE A-3 (cont'd) SUMMARY OF AVAILABLE PWQO/G - JULY 1992

SUBSTANCE	CAS NUMBER	EMPPL LIST.	PWQO STATUS	VALUE (μg/L)
STRONTIUM	7440246	/88	PROPOSED PWQG	7
Styrene	100425	/87	PROPOSED PWQG	20
Tetrachloroethylene	127184	/87	PROPOSED PWQG	50
Tetraethyl lead	78002	/87	PROPOSED PWQG	0.0009
Thallium	7440280	/87	PROPOSED PWQG	0.2
Toluene	108883	/87	PROPOSED PWQG	0.8
trans-1,2-Dichloroethylene	156605	/87	PROPOSED PWQG	200
Trichloroethylene	79016	/87	PROPOSED PWQG	2
Triethyl lead		/87	PROPOSED PWQG	0.4
Vanadium	7440622	/87	PROPOSED PWQG	7
Zinc	7440666	/87	PWQO	30
Zinc	7440666	/87	PROPOSED PWQG	16

LEGEND

(a) PWQO/G is either a narrative, or dependent on pH, alkalinity, or hardness; see Blue Book Table 1 and attached tables

(b) proposed PWQG's are under development for 2,3,7,8-T4CDD and 2,3,7,8-T4CDF only

(c) proposed PWQG's are available for some isomers of dimethylphenol

(d) PWQO is for MONOCHLOROPHENOL (7 μg/L)

(f) PWQO is for DIETHYLHEXYLPHTHALATE (0.6 μg/L)

(g) PWQO is for DIBUTYLPHTHALATE (4.0 μg/L)

(h) PWQO is for OTHER PHTHALATES (0.2 μg/L)

(j) PWQO/G is available for total PCB's, for total resin acids and for DHA, but not other individual isomers

PWQG = Provincial Water Quality Guideline

PWQO = Provincial Water Quality Objective

TABLE A-3 (cont'd) SUMMARY OF AVAILABLE PWQO/G - JULY 1992

PARAMETER	PROVINCIAL WATER QUALITY GUIDELINE
ALUMINUM, INORGANIC MONOMERIC	0.015 mg/L, at pH 4.5 to 5.5 measured in clay-free samples
ALUMINUM, ACID SOLUBLE INORGANIC	<10% increase above avge. background at pH>5.5-6.5 in clay free samples
ALUMINUM, TOTAL	0.075 mg/L at pH 6.5-9.0 measured in clay free samples
DHA	see footnote 1
RESIN ACIDS, TOTAL	see footnote 1
PHOSPHORUS, TOTAL	To avoid nuisance algae concentrations in lakes, total P should not exceed 20 μg/L
	To protect against aesthetic deterioration in lakes, total P should not esceed10 μg/L
	To avoid excess plant growth in rivers & streams, total P should not exceed 30 μg/L

(1) Total resin acids and DHA are pH dependent as shown below:

Receiving water pH	DHA (μg/L)	Total Resin Acids (μg/L)
5	1	1.0
5.5	1.9	2.7
6	2.5	4.2
6.5	4.2	9.3
7	8	25.0
7.5	11.8	45.4
8	12.9	52.4
8.5	14	59.8
9	14.3	61.5

PROPOSED METAL PWQO/G		
SUBSTANCE	HARDNESS (mg/L)	PROPOSED PWQO/G (μg/L)
CADMIUM	0 - 100	0.15
	> 100	0.45
COPPER	0 - 20	1
	> 20	5
LEAD	0 -30	1
	30 -80	3
	> 80	5

TABLE A–4 – SUMMARY OF REMARK CODES USED IN THE OCM SECTOR

Remark Code	Explantation of Code
<	Actual amount less than reported
<DL	Reported value = MDL (Method Detection Limit)
<W	No measurable response (zero)
<WE	No measurable response (sample dilution)
<T	A measurable trace amount
>	Actual amount probably greater than reported
?	Questionable data
A	Approximate value
AR	Attached report
I *	Interference suspected
IB*	Background interference
IC*	Interference from colour
IM	Interference because of sample matrix
MP *	Multiphase Sample: result may be suspect
OLD*	Old, sample exceeds maximum storage time
Pxx	PCB resembled a specific AROCLOR or a mixture of AROCLORs
SIP *	Sample improperly preserved
SID *	Sample identification questionable
Txx	Various time intervals in hours between sampling and analysis
UCR*	Data unreliable, could not reconfirm by reanalysis
UQC	Data unreliable, possible QA/QC problems
N/A	No data will be reported
|IN	No data, insufficient sample volume due to inspection
|NM*	No effluent – no sample available

* Remark-coded data rejected

APPENDIX B

SITE FLOWS

PAGE

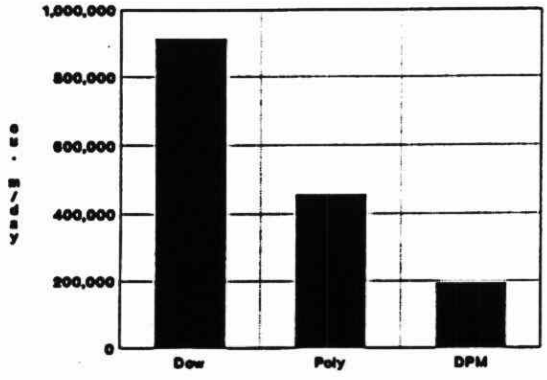
Figure B-1 - OCM SECTOR - PLANT FLOW COMPARISON B-2
Table B-1 - FLOW SUMMARY FOR ALL SAMPLING POINTS B-3

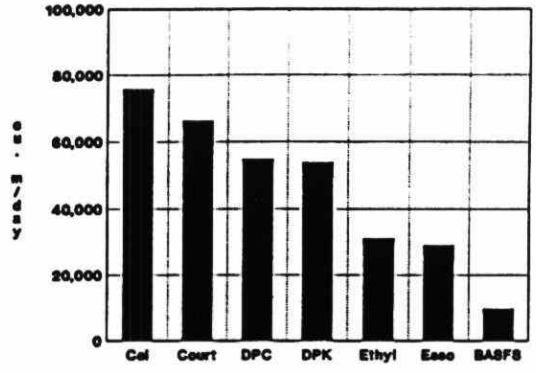
Figure B–1
OCM Sector – Plant Flow Comparison

(Twelve–Month Average Data – m3/day)

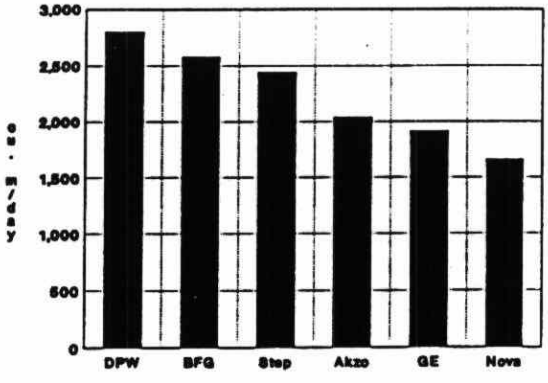
(See Table B–1 for the Plant Site Code Key)

Highest





Lowest



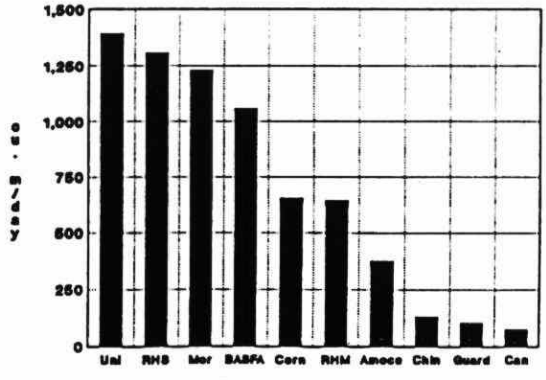


TABLE B–1 – FLOW SUMMARY FOR ALL SAMPLING POINTS

(All Results in m3/day)

for the Key to Abbreviations – see Appendix A.

PLANT SITE / CODE	CTRLPT	SCLASS	N	MIN	MAX	AVG	STD DEV
Akzo Chemicals Ltd. – Sarnia (Akzo)	0100	OT	12	1,027	3,300	2,040	831
Amoco Canada Resources Ltd. – Sarnia (Amoco)	0100	CO	293	10	1,363	377	321
	0200	EM	1	446	446	446	–
	0300	EM	8	120	393	233	100
	0500	BA	18	109	109	109	0
BASF Canada Inc. – Arnprior (BASFA)	0100	OT	12	531	1,767	1,056	331
BASF Canada Inc. – Sarnia (BASFS)	0100	OT	12	4,449	13,483	9,378	2,913
	0200	OT	12	35	414	210	118
B.F. Goodrich Canada Inc. – Thorold (BFG)	0100	PR	363	98	7,560	2,580	1,039
Canadianoxy Chemicals Ltd. – Fort Erie (Can)	0100	OT	12	20	208	76	63
Celanese Canada Inc. – Millhaven (Cel)	0100	CO	344	6,050	23,390	12,019	3,987
	0200	CO	363	8,490	108,120	36,705	14,766
	0300	CO	359	10,210	61,600	27,042	10,766
	0400	PR	356	654	8,243	4,023	807
Chinook Group Ltd. – Sombra (Chin)	0100	CO	358	3	313	134	71
Cornwall Chemicals Ltd. – Cornwall (Corn)	0100	PR	360	281	1,441	655	167
Courtaulds Fibres Canada – Cornwall (Court)	0100	PR	365	810	8,889	5,426	1,391
	0300	PR	346	9	6,056	1,524	896
	0500	CO	364	264	23,899	10,077	4,577
	0600	CO	362	7,407	54,456	31,604	6,956
	0700	CO	365	2,423	12,220	6,447	1,449
	0800	CO	363	3,554	90,059	11,167	4,717
Dow Chemical Canada Inc. – Sarnia (Dow)	0200	CO	365	35,011	127,000	82,887	24,614
	0300	OT	12	52,007	66,825	60,422	4,245
	0500	CO	365	9,509	140,610	48,783	26,683
	0600	CO	365	34,198	91,663	53,872	7,617
	0700	CO	365	69,971	138,510	102,070	15,276
	0900	CO	365	363,000	846,048	566,351	79,951
	1000	OT	12	9,509	16,481	13,238	2,129
	1200	PR	362	41	1,366	669	164
	1400	EM	150	7	65	55	9
	1500	EM	30	104	135	118	9
	1600	PR	365	3	2,895	576	680
	1700	PR	365	578	1,669	1,099	168
	1900	PR	365	1,731	11,368	8,650	1,739
	2000	PR	365	82	1,988	1,042	350
	2100	PR	109	36	190	130	33
	2200	WA	12	637	10,206	3,993	2,919
	2300	WA	16	440	2,608	1,486	705
Du Pont Canada Inc. – Corunna (DPC)	0200	CO	363	3,100	81,000	54,696	11,894
	0400	CO	359	6,300	32,200	15,088	5,519
Du Pont Canada Inc. – Kingston (DPK)	0600	PR	329	8	1,591	892	321
	0700	CO	294	4,942	74,039	29,072	13,930
	0800	WA	1	43	43	43	–
	1000	PR	302	34	275	114	42
	1100	CO	289	14,022	38,097	24,770	4,301
Du Pont Canada Inc. – Maitland (DPM)	0300	PR	364	540	8,200	4,895	1,655
	0400	CO	362	2,300	7,700	5,512	965
	0500	CO	364	5,400	26,100	14,233	2,855
	0700	CO	364	15,900	71,000	53,777	7,586
	1100	CO	365	35,000	271,000	191,263	38,004
Du Pont Canada Inc. – Whitby (DPW)	0200	CO	345	433	1,247	654	150
	0300	OT	12	25	91	54	21
	0400	OT	12	189	512	295	95
	0500	OT	12	234	719	426	138
	0600	OT	12	1,121	2,082	1,373	258

TABLE B–1 – FLOW SUMMARY FOR ALL SAMPLING POINTS

(All Results in m3/day)

for the Key to Abbreviations – see Appendix A.

PLANT SITE / CODE	CTRLPT	SCLASS	N	MIN	MAX	AVG	STD DEV
Esso Chemical Canada – Sarnia (Esso)	0200	PR	362	267	6,412	2,549	1,187
	0300	CO	363	7,412	38,913	28,941	3,620
Ethyl Canada Inc. – Corunna (Ethyl)	0100	CO	364	2,001	73,584	31,080	9,030
	0200	PR	362	1	1,103	207	113
	0300	PR	360	1	1,842	590	375
GE Plastics Canada Ltd. – Cobourg (GE)	0100	CO	365	79	2,729	1,787	361
	0400	OT	281	1	1,431	126	234
Guardsman Products Ltd. – Cornwall (Guard)	0100	OT	10	24	199	104	59
Morbern Inc. – Cornwall (Mor)	0100	OT	9	1,130	1,384	1,230	90
Novacor Chemicals Ltd. – Mooretown (Nova)	0100	CO	346	687	2,246	1,660	211
	0300	EM	9	170	19,900	8,854	6,959
Polysar Ltd. – Sarnia (Poly)	0200	CO	363	68	86,452	67,567	14,668
	0300	PR	365	677	4303	2674	653
	0400	CO	365	69,612	251,589	143,338	35,663
	0500	CO	365	34,781	198,688	169,478	27,264
	0900	PR	365	463	4811	2337	744
	1100	CO	365	26,870	205,750	105,363	32,973
	1301	EM	37	1	1,158	190	208
	1302	EM	5	66	157	111	39
	1400	OT	12	2,100	166,809	62,922	61,609
	1700	BA	314	127	1384	787	235
	1800	PR	365	81	17730	12432	2331
	2000	EM	11	2	566	112	176
Rohm and Haas Canada Inc. – Morrisburg (RHM)	0100	CO	365	163	1,380	645	186
	0200	PR	365	25	827	351	116
Rohm and Haas Canada Inc. – Scarborough (RHS)	0100	OT	6	1,309	1,309	1,309	0
Stepan Canada Inc. – Longford Mills (Step)	0100	CO	364	481	4,399	2,440	543
	0200	PR	319	4	261	136	40
	0400	EM	2	4	59	32	39
Uniroyal Chemical Ltd. – Elmira (Uni)	0200	OT	10	71	1,750	721	470
	0600	CO	202	1	1,428	421	470
	0800	CO	320	95	31,310	2,390	2,611
	0900	CO	363	11	1,234	252	166

STORM CONTROL POINTS

Akzo Chemicals Ltd. – Sarnia	0300	ST	10	91	2,410	885	
Amoco Canada Resources Ltd. – Sarnia	0400	ST	10	10	1,724	656	
Celanese Canada Inc. – Millhaven	0700	ST	10	33	9,086	3,583	
Chinook Group Ltd. – Sombra	0200	ST	7	18	2,423	556	
Du Pont Canada Inc. – Maitland	0800	ST	13	100	1,850	490	
	0900	ST	12	34	5,300	825	
Ethyl Canada Inc. – Corunna	0400	ST	12	2	116	43	
	0500	ST	12	5	93	47	
	0600	ST	12	1	1,271	152	
GE Plastics Canada Ltd. – Cobourg	0200	ST	70	4	331	91	
	0300	ST	56	1	103	30	
Novacor Chemicals Ltd. – Mooretown	0200	ST	12	711	7,241	3,005	
	0400	ST	12	182	10,800	3,798	
Polysar Ltd. – Sarnia	1300	ST	11	201	2,224	663	
	1500	ST	12	228	2,526	746	
	2200	ST	12	107	1,181	349	
Rohm and Haas Canada Inc. – Morrisburg	0300	ST	9	44	157	113	
	0600	ST	6	0	1,145	191	
Uniroyal Chemical Ltd. – Elmira	0400	ST	13	9	292	75	

APPENDIX C

PLOTS OF TWELVE-MONTH AVERAGE SITE LOADINGS

		PAGE
Figure C-1	AMMONIA/AMMONIUM	C-2
Figure C-2	NITRATE/NITRITE	C-3
Figure C-3	TOTAL KJELDAHL NITROGEN	C-4
Figure C-4	DOC	C-5
Figure C-5	PHOSPHORUS	C-6
Figure C-6	TOTAL SUSPENDED SOLIDS	C-7
Figure C-7	VOLATILE SUSPENDED SOLIDS	C-8
Figure C-8	PHENOLICS	C-9
Figure C-9	SULPHIDE	C-10
Figure C-10	OIL AND GREASE	C-11
Figure C-11	CYANIDE	C-12

(See Table B-1 for the Plant Site Code Key)

High Range

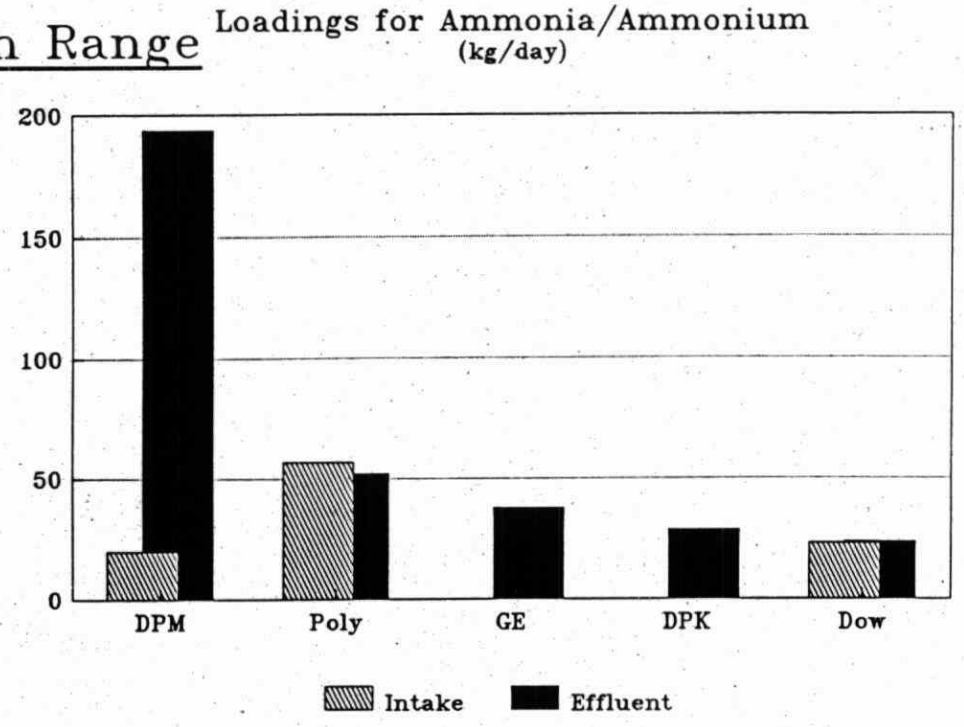
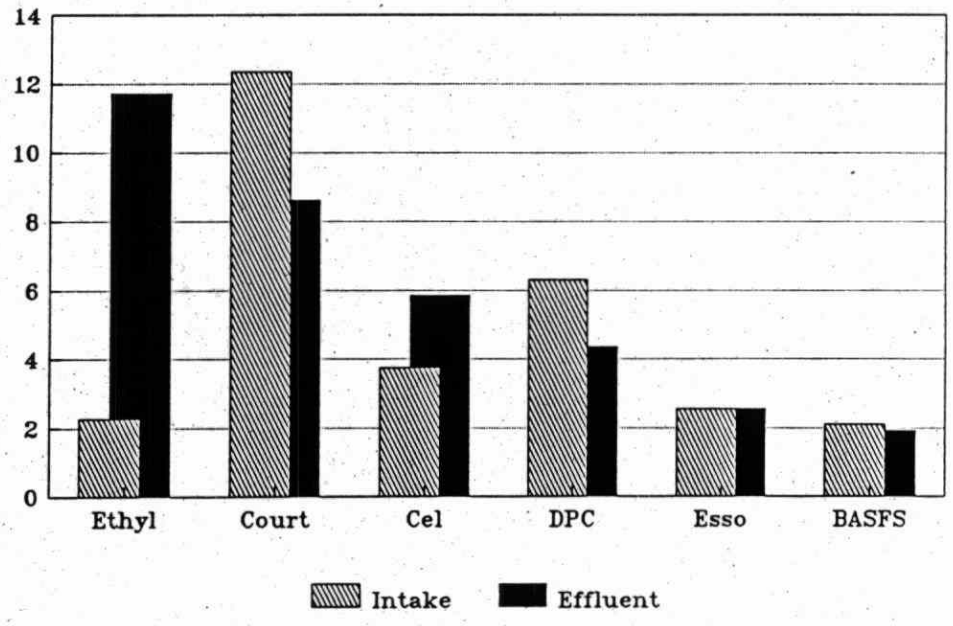


Figure C-1 Loadings for Ammonia/Ammonium (kg/day)

Low Range



High Range

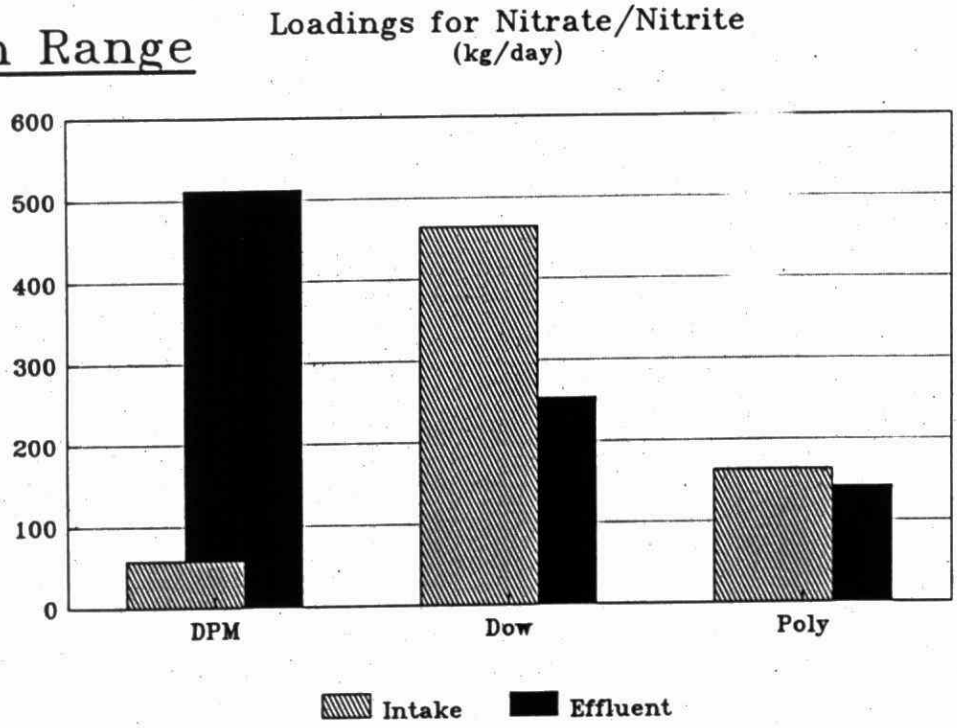
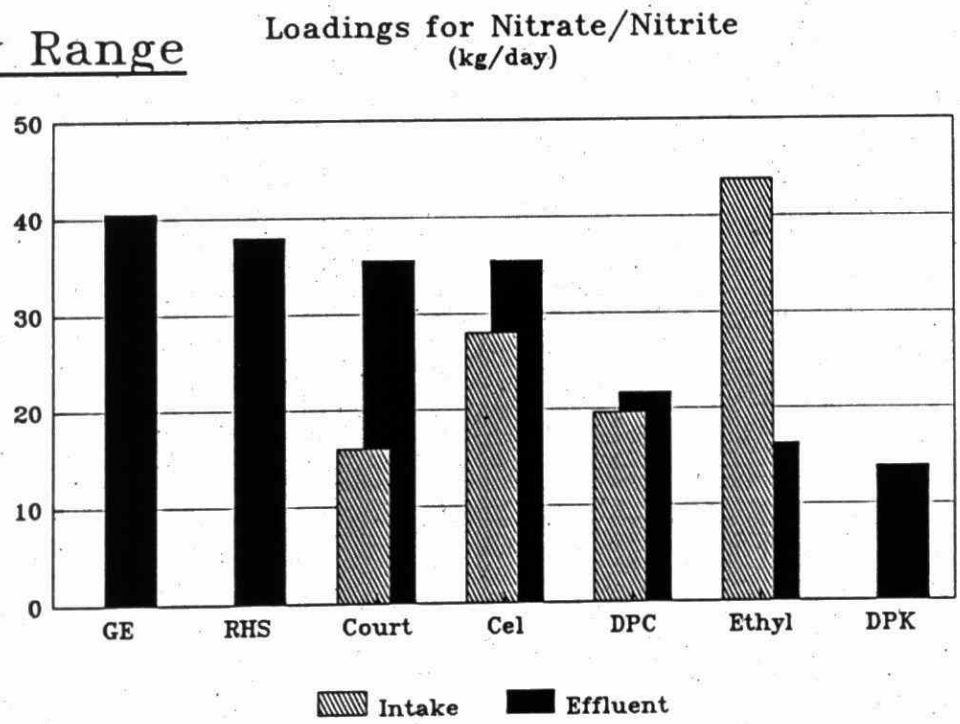


Figure C-2 Loadings for Nitrate/Nitrite (kg/day)

Low Range



High Range

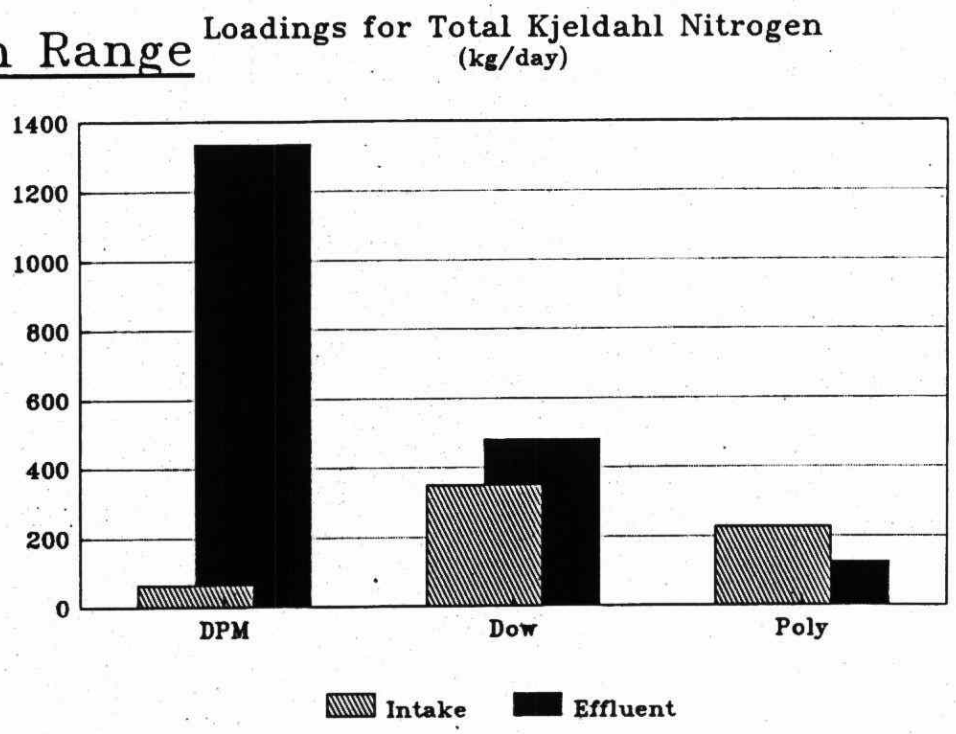
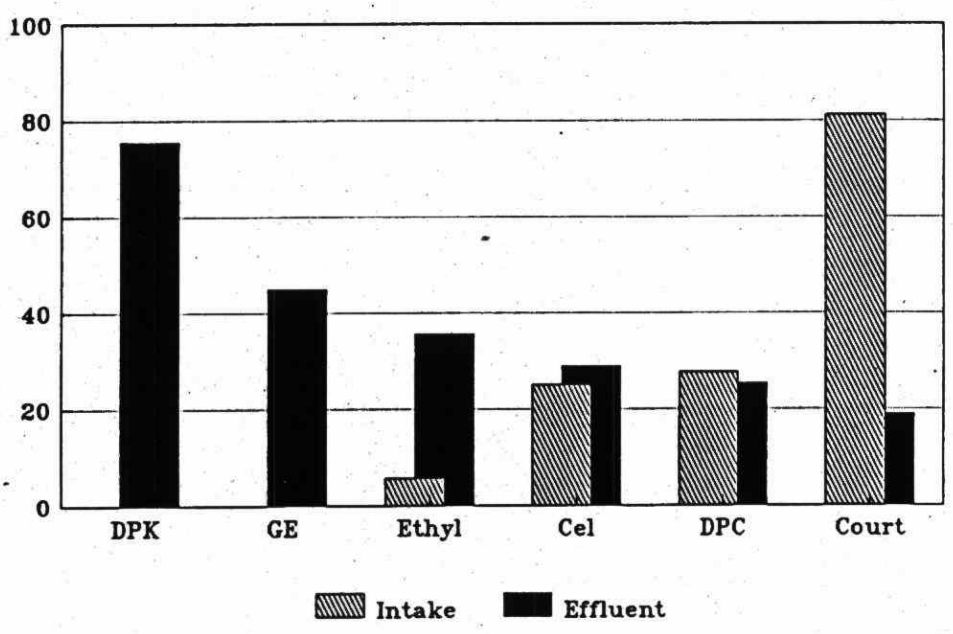


Figure C-3 Loadings for Total Kjeldahl Nitrogen (kg/day)

Low Range



High Range

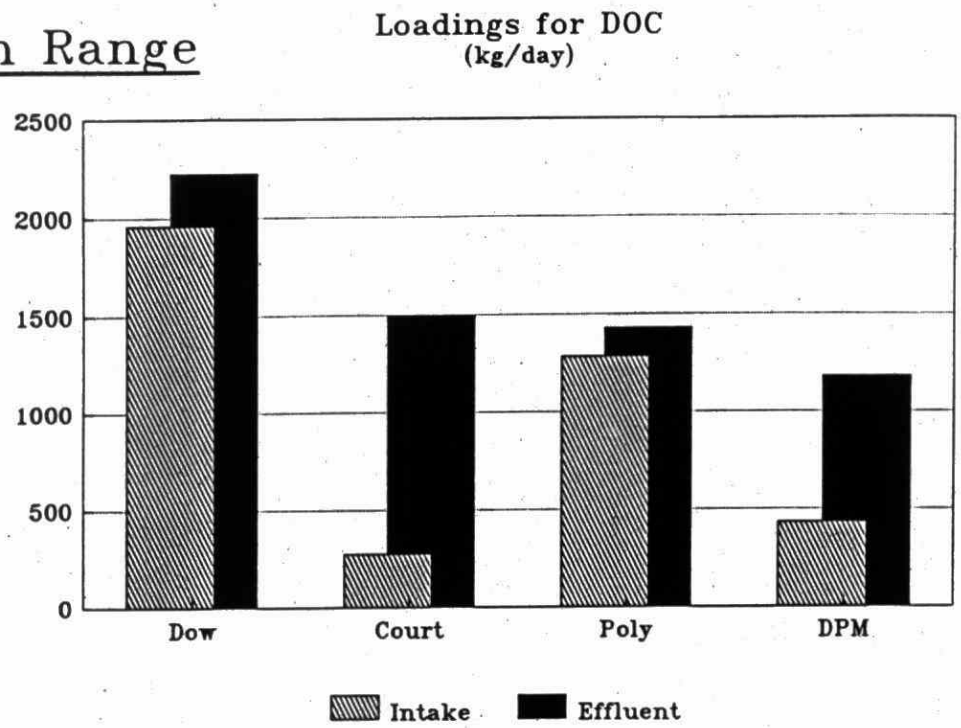
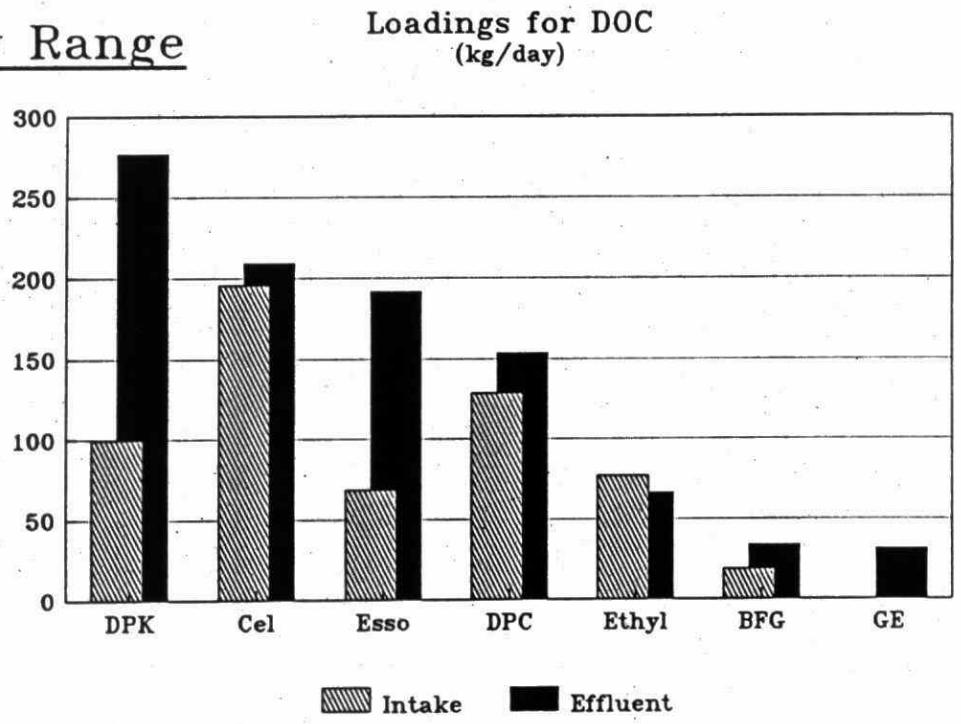


Figure C-4 Loadings for DOC (kg/day)

Low Range



High Range

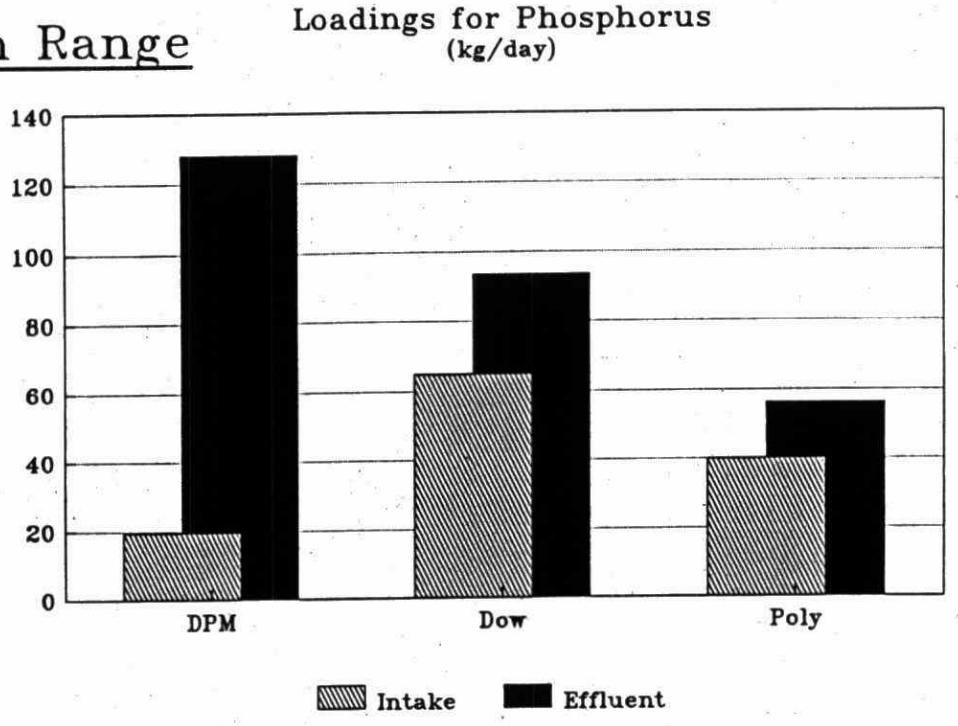
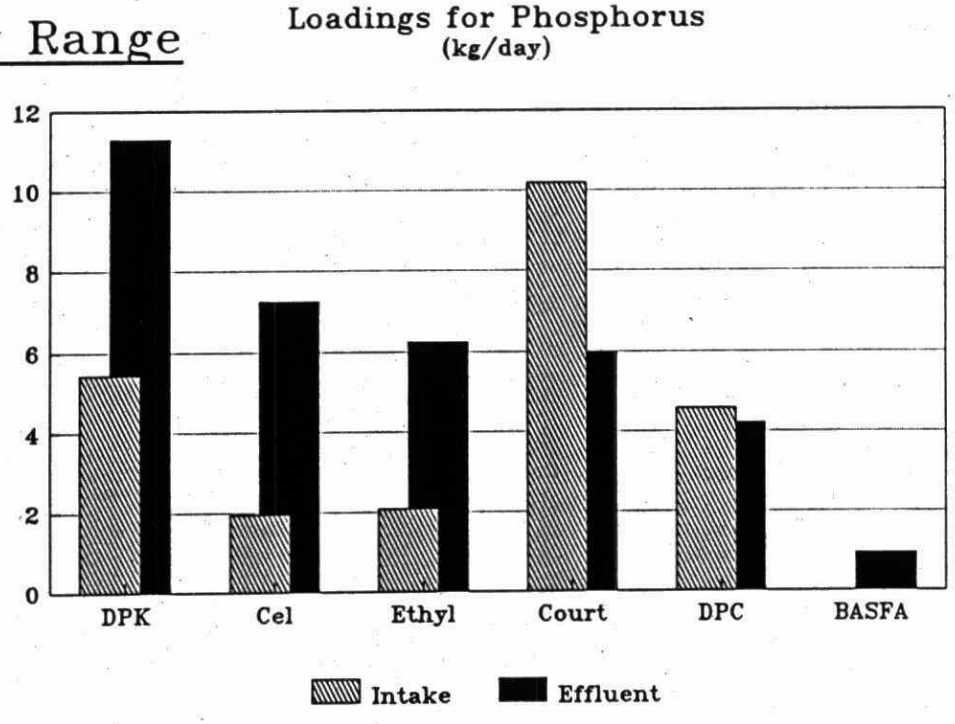


Figure C-5 Loadings for Phosphorus (kg/day)

Low Range



High Range

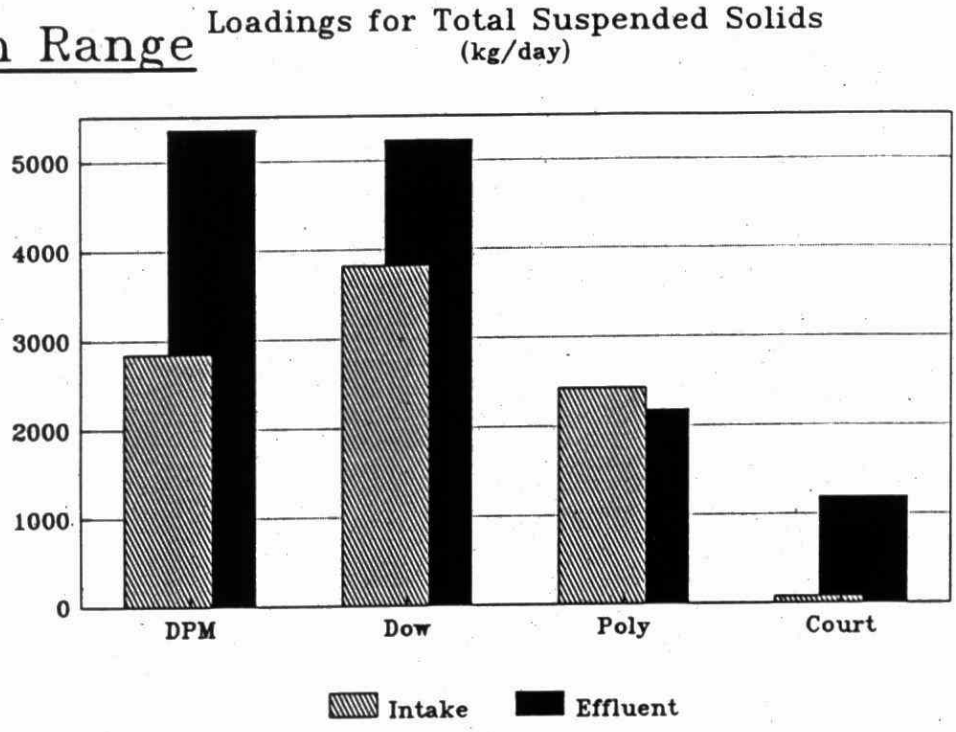
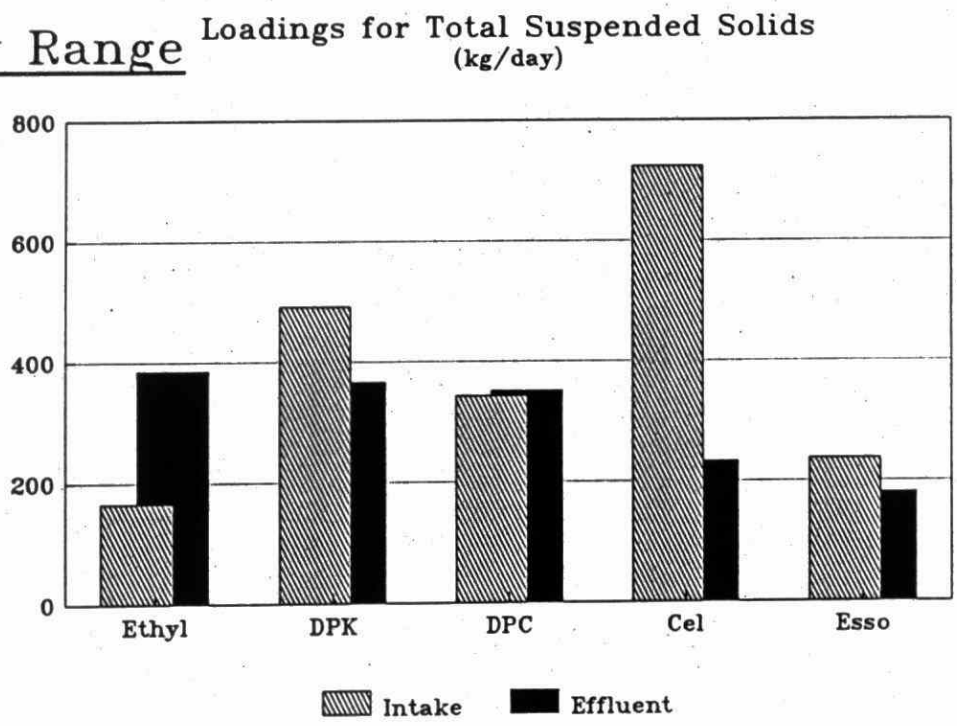


Figure C-6 Loadings for Total Suspended Solids (kg/day)

Low Range



High Range

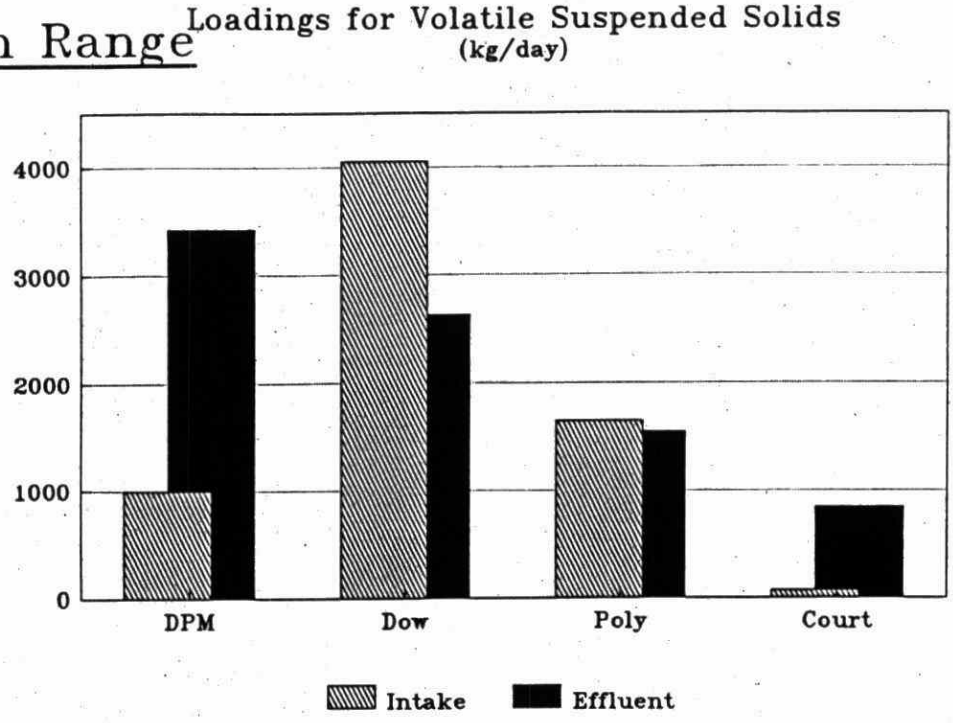
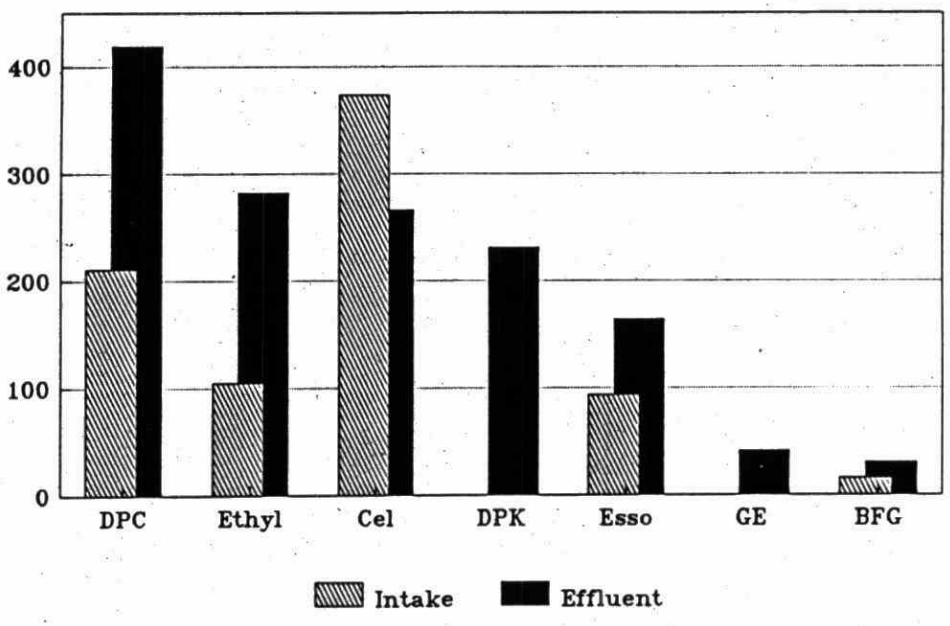


Figure C-7 Loadings for Volatile Suspended Solids (kg/day)

Low Range



High Range

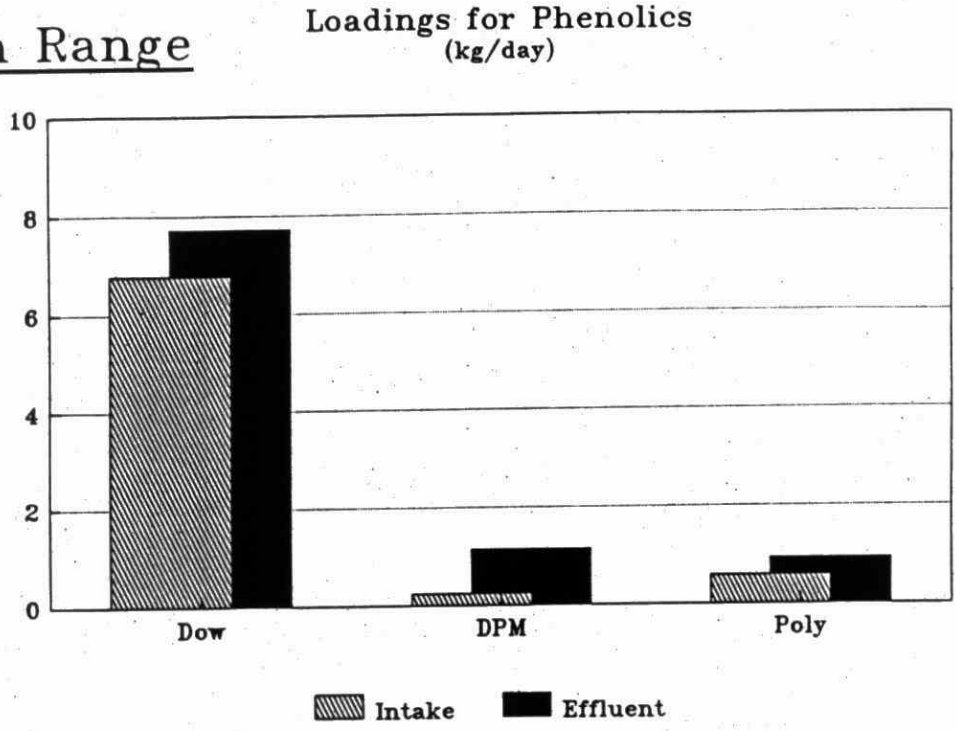
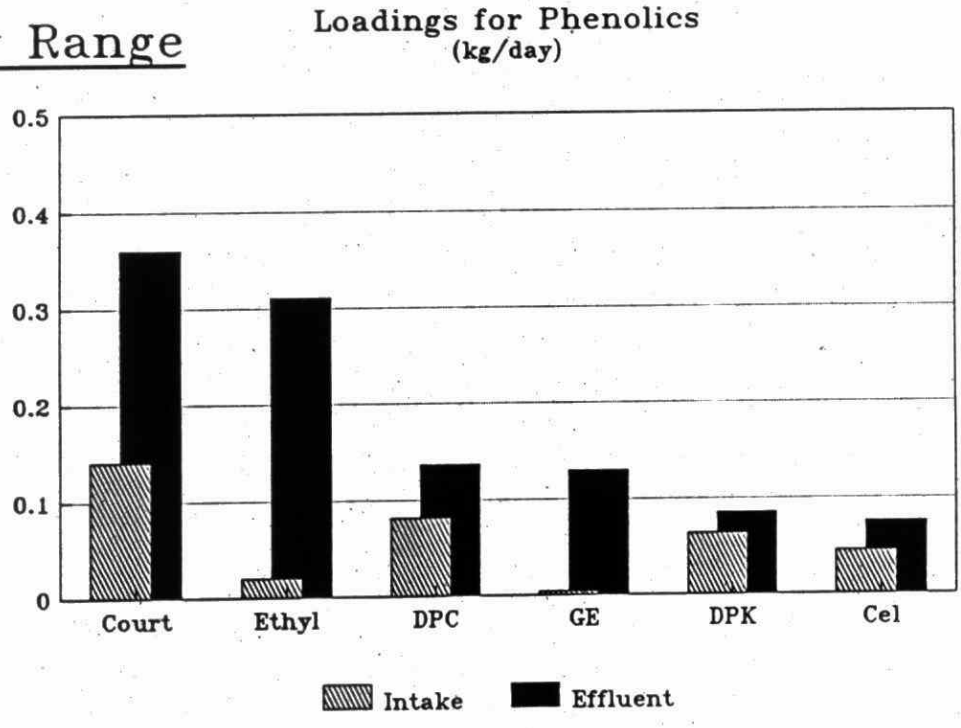


Figure C-8 Loadings for Phenolics (kg/day)

Low Range



High Range

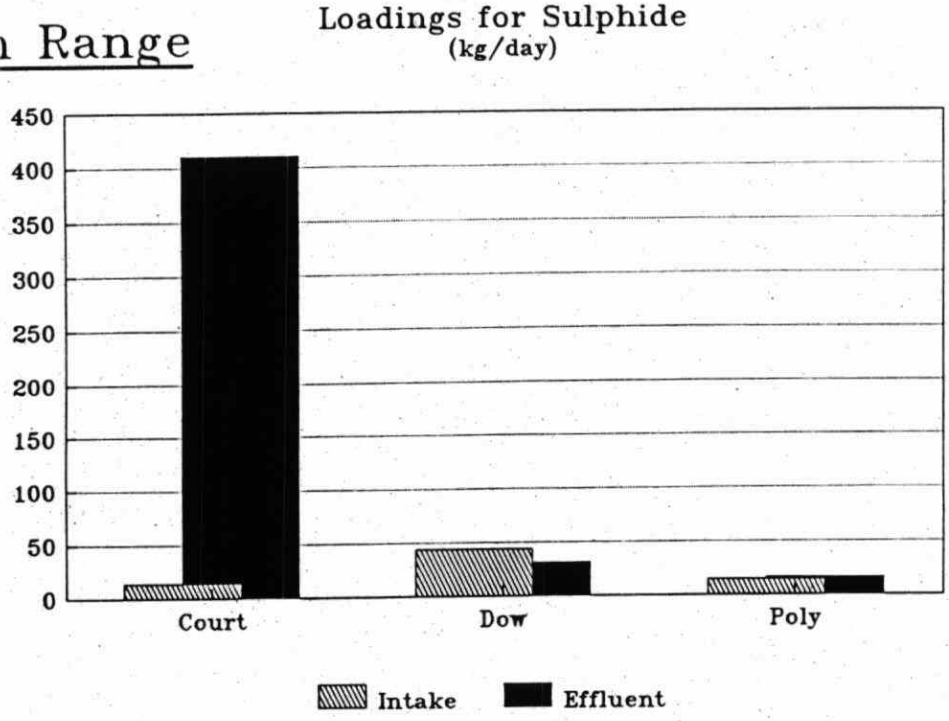
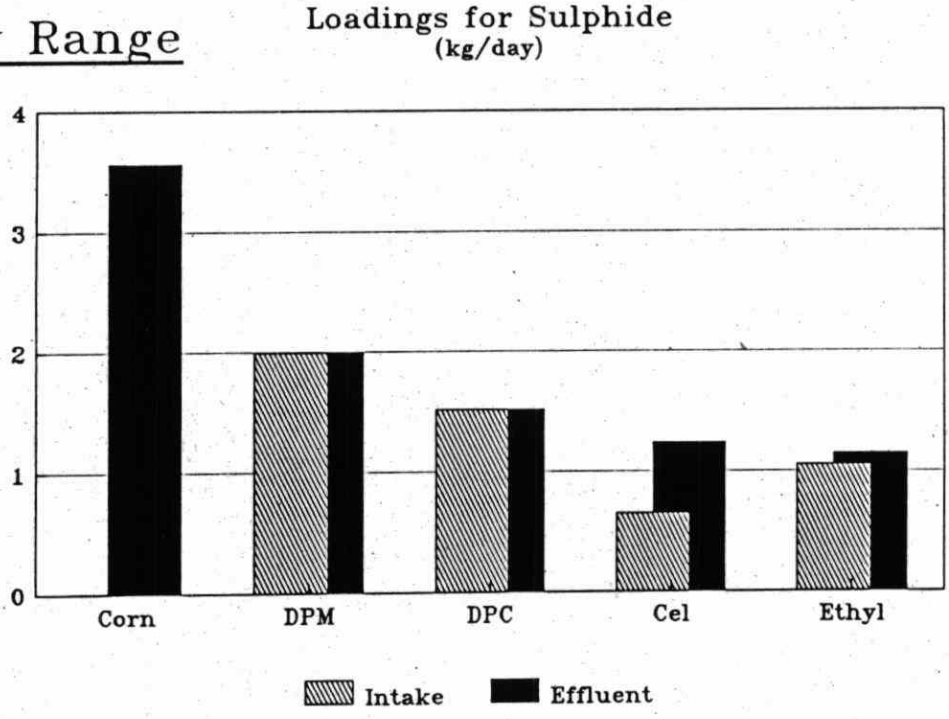


Figure C-9 Loadings for Sulphide (kg/day)

Low Range



High Range

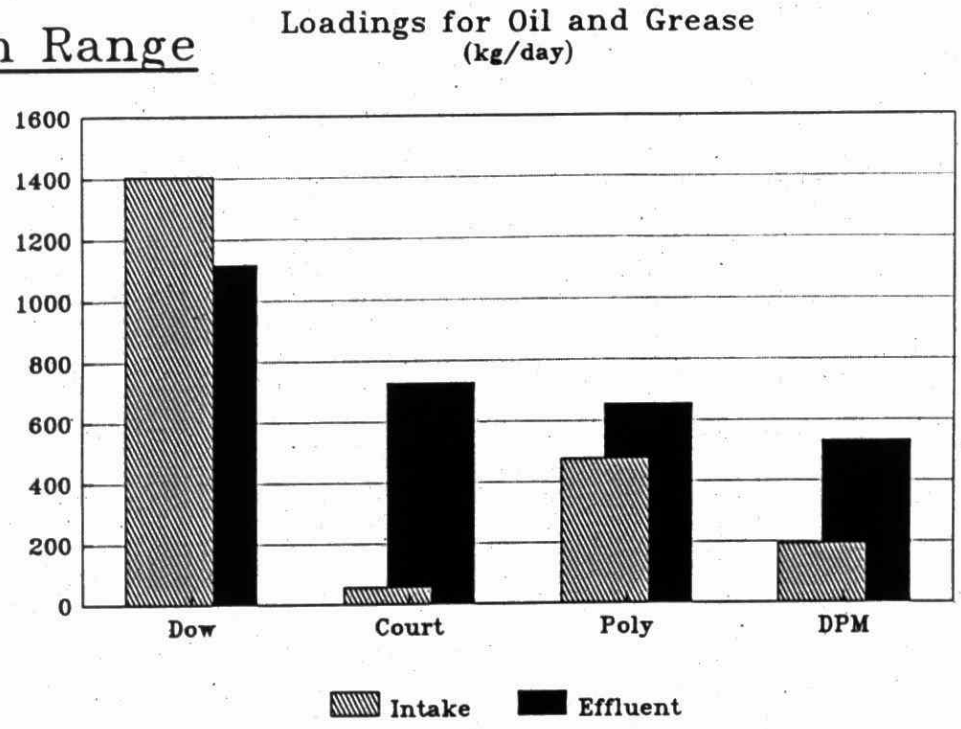
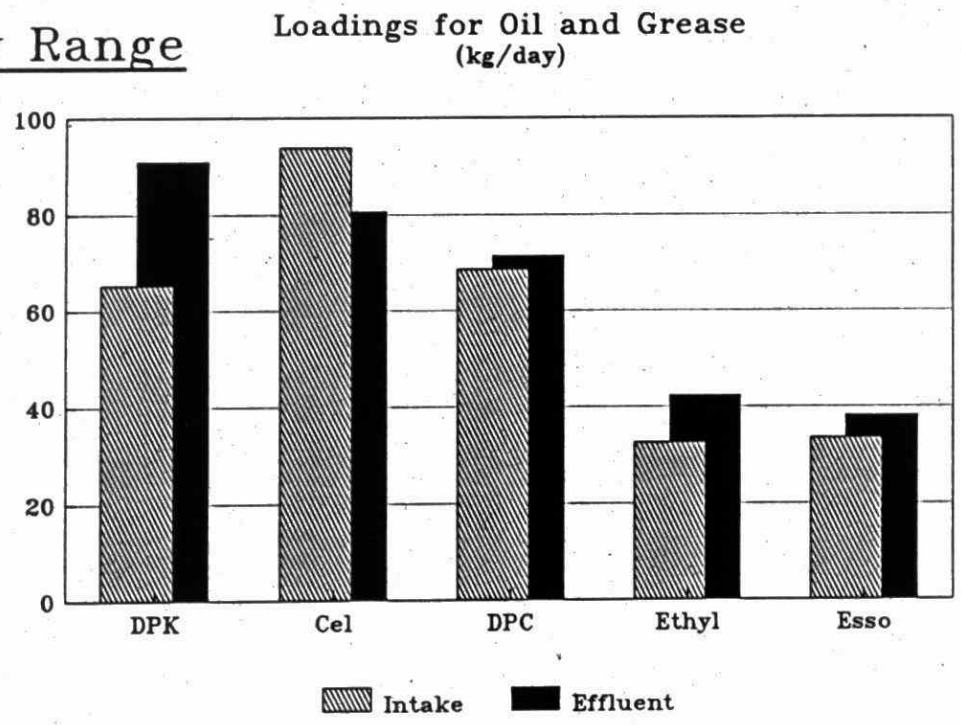


Figure C-10 Loadings for Oil and Grease (kg/day)

Low Range



High Range

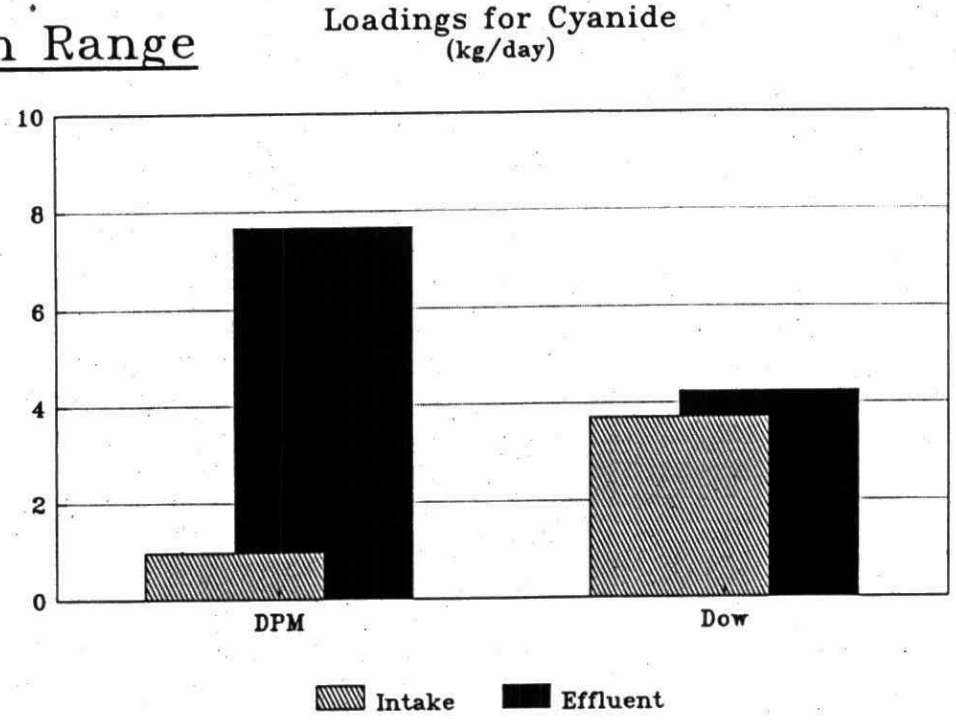
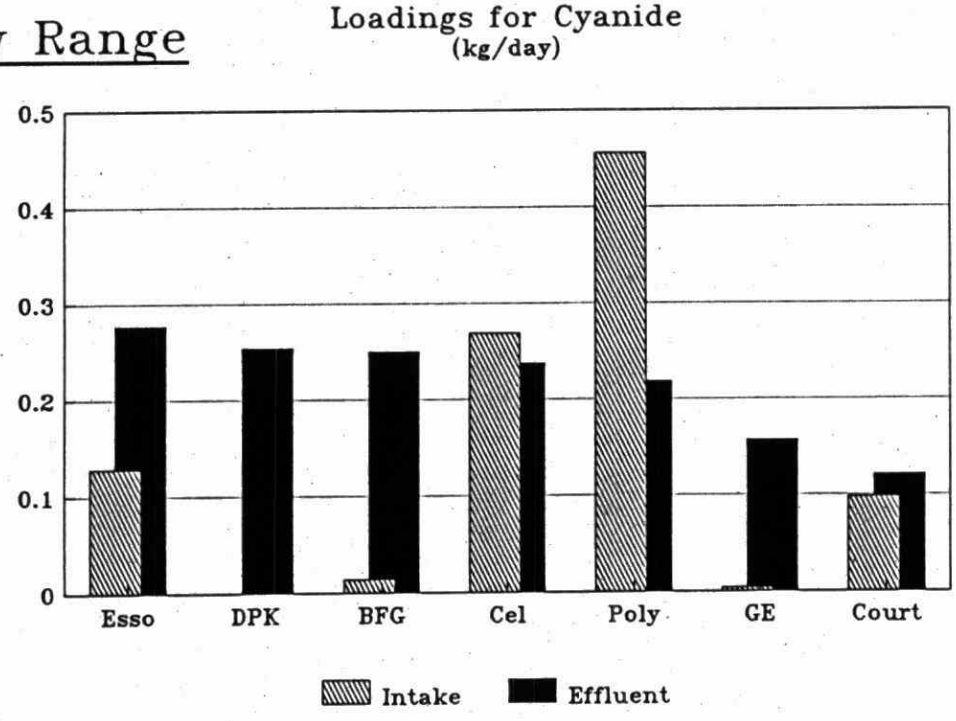


Figure C-11 Loadings for Cyanide (kg/day)

Low Range



APPENDIX D

PLOTS OF MONTHLY AVERAGE SITE LOADINGS

PAGE

Figure D-1 DOC D-2
Figure D-2 TSS D-7
Figure D-3 OIL AND GREASE D-12

FIGURE D-1

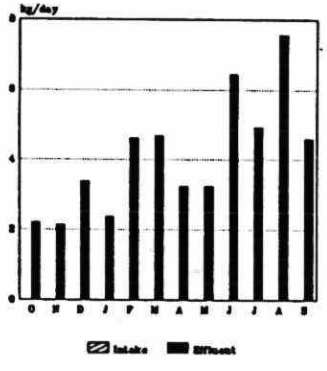
MONTHLY AVERAGE SITE LOADINGS - DOC

OCM SECTOR

OCTOBER 1, 1989 - JULY 31, 1991

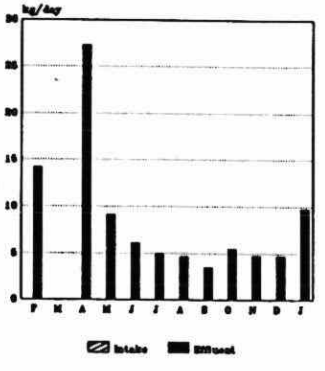
(Note: Scales vary with each plot)

DOC
FOR AKZO CHEMICALS LTD.



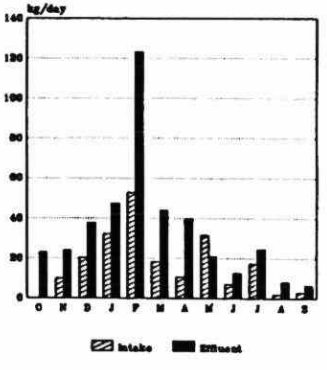
No intake data

DOC
FOR AMOCO CANADA

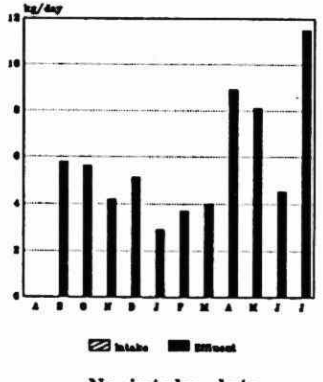


No intake data

DOC
FOR B.F. GOODRICH

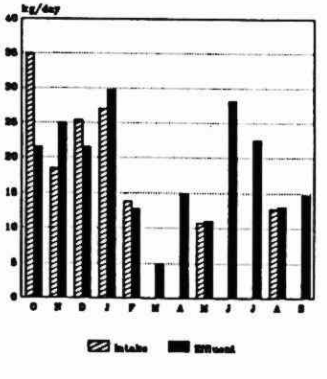


DOC
FOR BASF CANADA INC. (A)



No intake data

DOC
FOR BASF CANADA INC. (S)



DOC
FOR CANADIANOXY

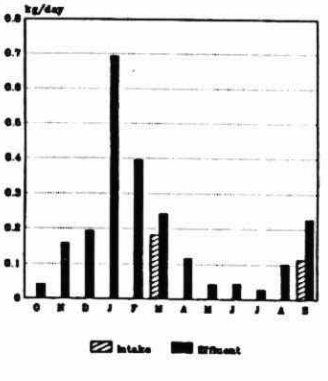


FIGURE D-1

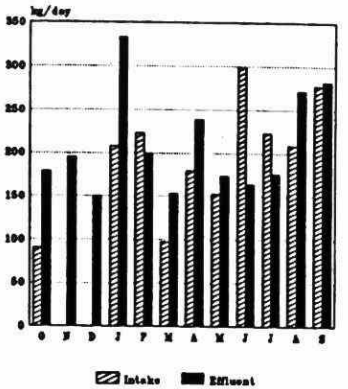
MONTHLY AVERAGE SITE LOADINGS - DOC

OCM SECTOR

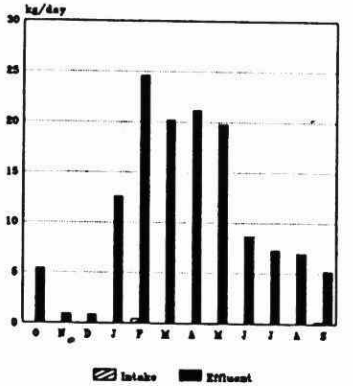
OCTOBER 1, 1989 - JULY 31, 1991

(Note: Scales vary with each plot)

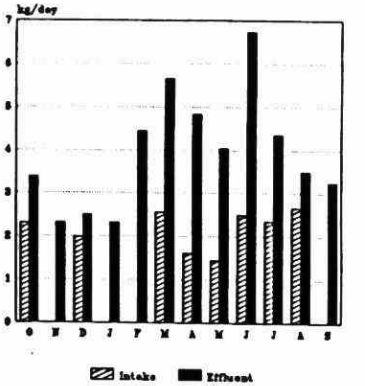
DOC
FOR CELANESE



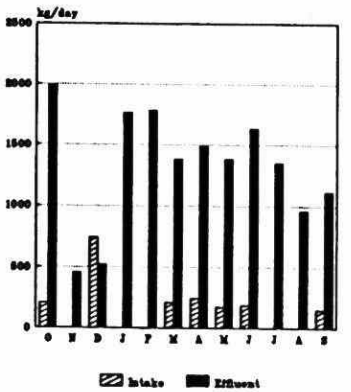
DOC
FOR CHINOOK GROUP



DOC
FOR CORNWALL CHEMICALS



DOC
FOR COURTAULDS FIBRES



DOC
FOR DOW CHEMICAL

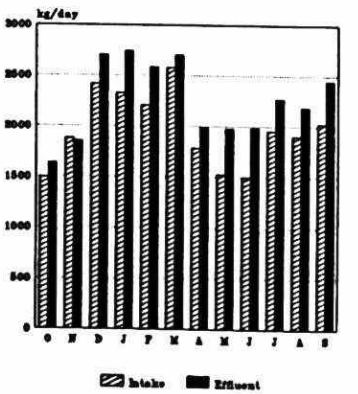


FIGURE D-1

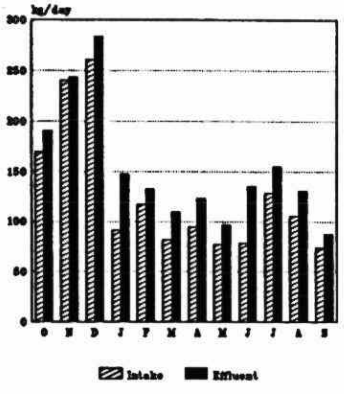
MONTHLY AVERAGE SITE LOADINGS - DOC

OCM SECTOR

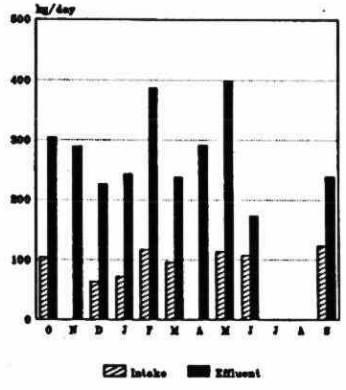
OCTOBER 1, 1989 - JULY 31, 1991

(Note: Scales vary with each plot)

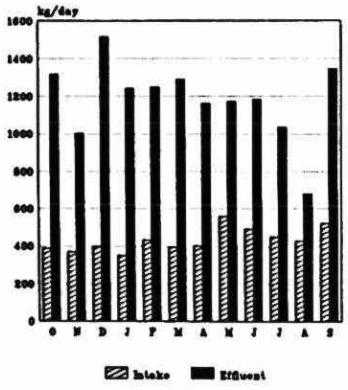
DOC
FOR DU PONT (CORUNNA)



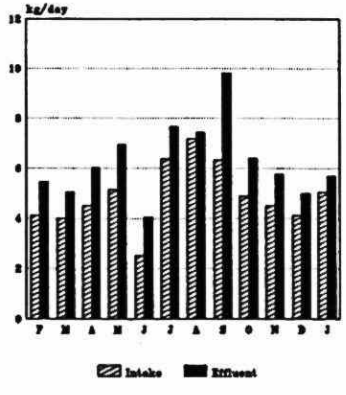
DOC
FOR DU PONT (KINGSTON)



DOC
FOR DU PONT (MAITLAND)



DOC
FOR DU PONT (WHITBY)



DOC
FOR ESSO CHEMICAL

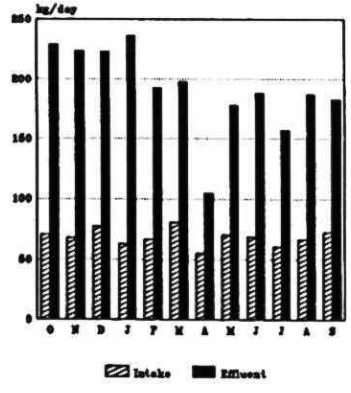


FIGURE D-1

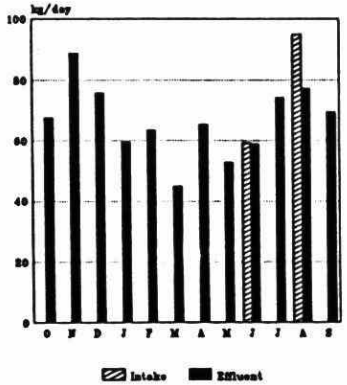
MONTHLY AVERAGE SITE LOADINGS - DOC

OCM SECTOR

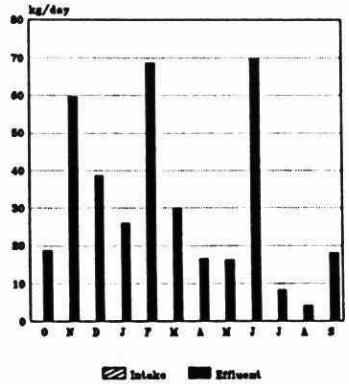
OCTOBER 1, 1989 - JULY 31, 1991

(Note: Scales vary with each plot)

DOC
FOR ETHYL CANADA

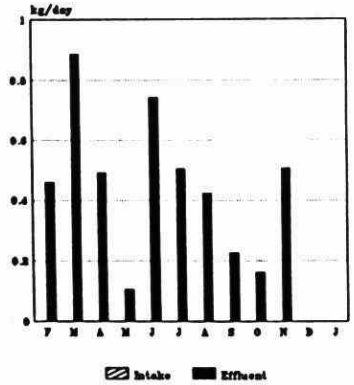


DOC
FOR GE PLASTICS



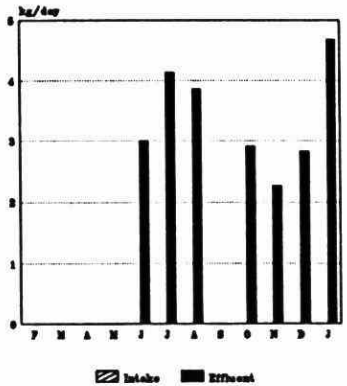
No DOC intake data

DOC
FOR GUARDSMAN PRODUCTS LTD.



No intake data

DOC
FOR MORBERN INC.



No intake data

DOC
FOR NOVACOR (MOORETOWN)

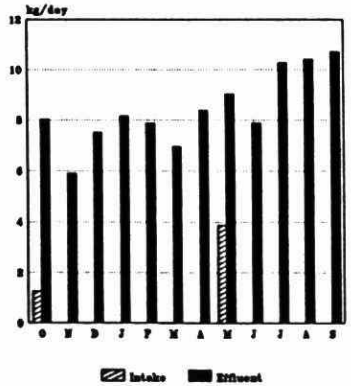


FIGURE D-1

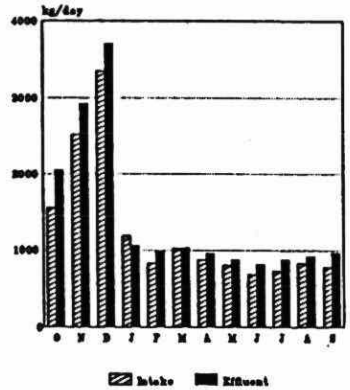
MONTHLY AVERAGE SITE LOADINGS - DOC

OCM SECTOR

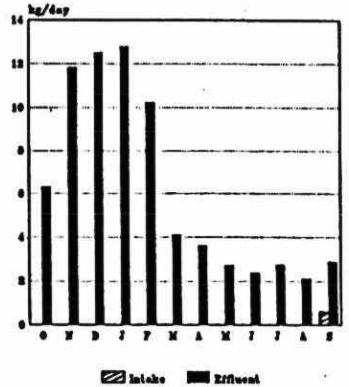
OCTOBER 1, 1989 - JULY 31, 1991

(Note: Scales vary with each plot)

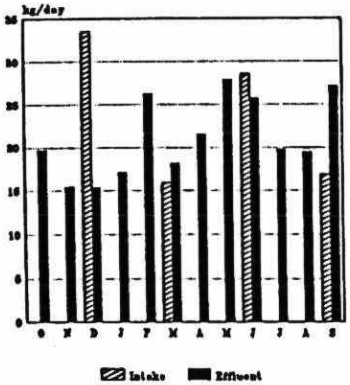
DOC
FOR POLYSAR LTD.



DOC
FOR ROHM AND HAAS (M)



DOC
FOR STEPAN



DOC
FOR UNIROYAL

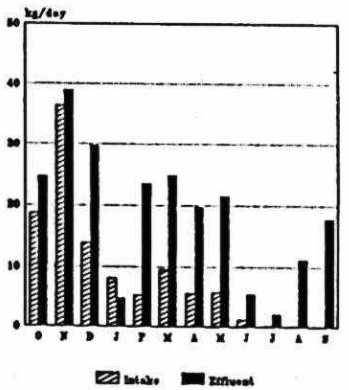


FIGURE D-2

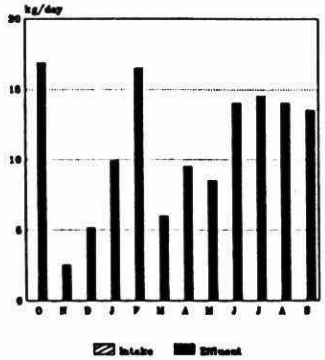
MONTHLY AVERAGE SITE LOADINGS - TSS

OCM SECTOR

OCTOBER 1, 1989 - JULY 31, 1991

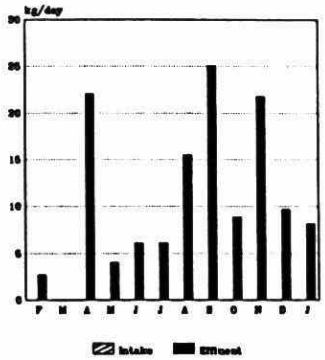
(Note: Scales vary with each plot)

TSS
FOR AKZO CHEMICALS LTD.



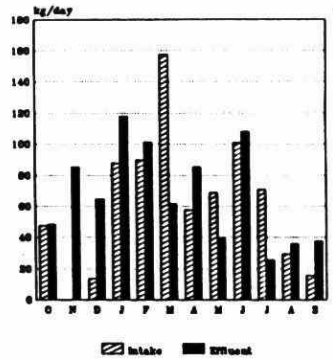
No intake data

TSS
FOR AMOCO CANADA

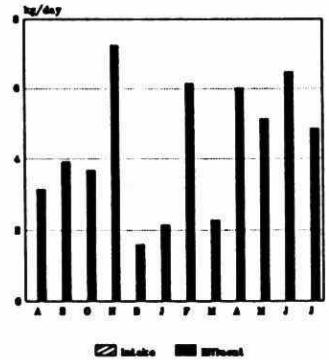


No intake data

TSS
FOR B.F. GOODRICH

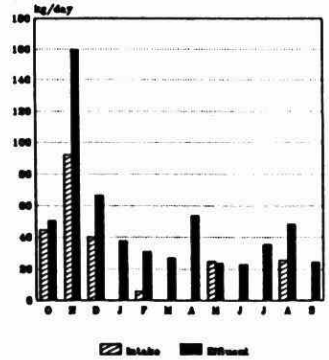


TSS
FOR BASF CANADA INC. (A)



No intake data

TSS
FOR BASF CANADA INC.



TSS
FOR CANADIANOXY

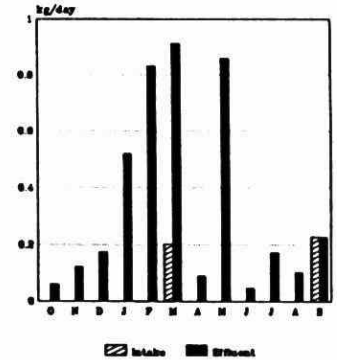


FIGURE D-2

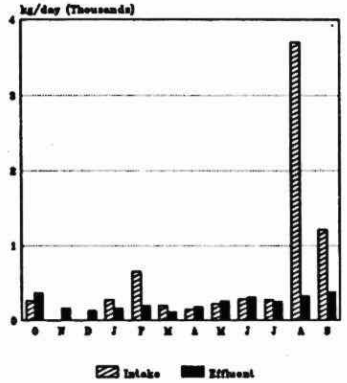
MONTHLY AVERAGE SITE LOADINGS - TSS

OCM SECTOR

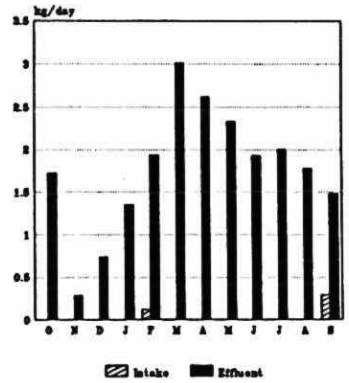
OCTOBER 1, 1989 - JULY 31, 1991

(Note: Scales vary with each plot)

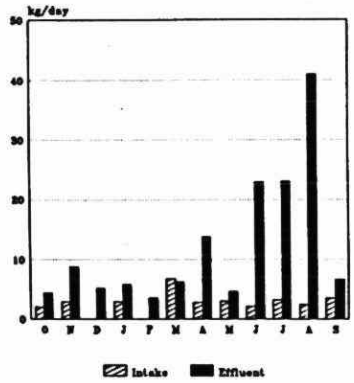
TSS
FOR CELANESE



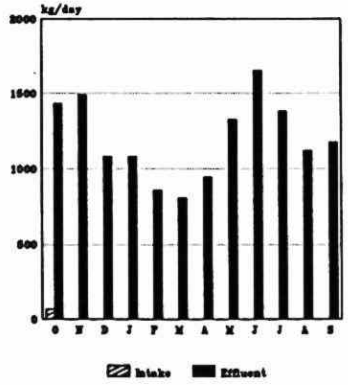
TSS
FOR CHINOOK GROUP



TSS
FOR CORNWALL CHEMICALS



TSS
FOR COURTAULDS FIBRES



TSS
FOR DOW CHEMICAL

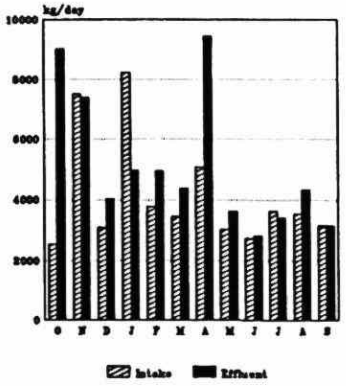


FIGURE D-2

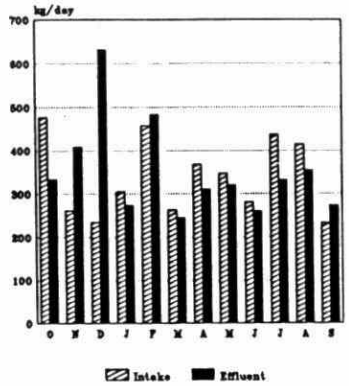
MONTHLY AVERAGE SITE LOADINGS - TSS

OCM SECTOR

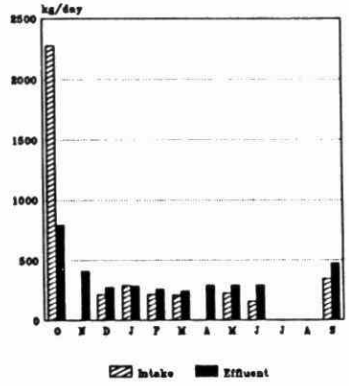
OCTOBER 1, 1989 - JULY 31, 1991

(Note: Scales vary with each plot)

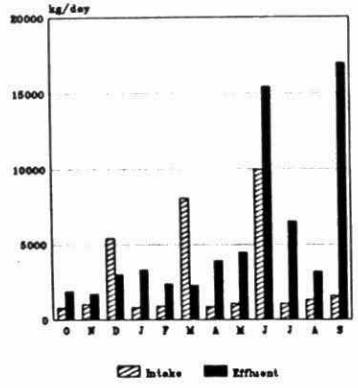
TSS
FOR DU PONT (CORUNNA)



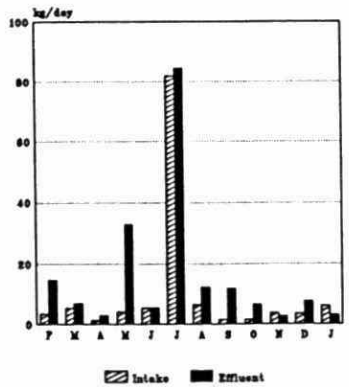
TSS
FOR DU PONT (KINGSTON)



TSS
FOR DU PONT (MAITLAND)



TSS
FOR DU PONT (WHITBY)



TSS
FOR ESSO CHEMICAL

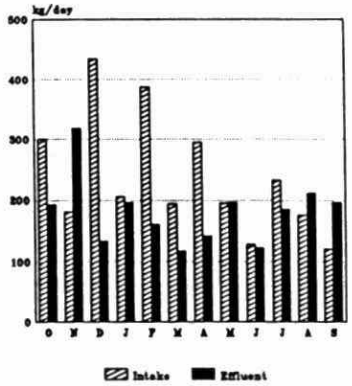


FIGURE D-2

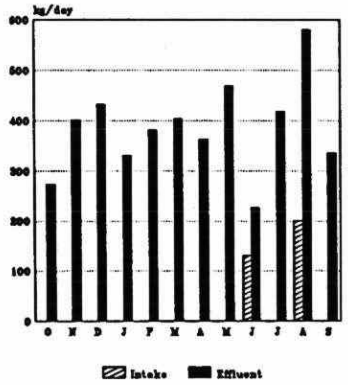
MONTHLY AVERAGE SITE LOADINGS - TSS

OCM SECTOR

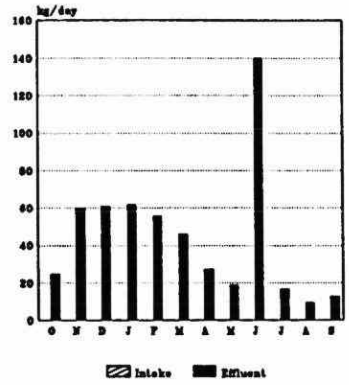
OCTOBER 1, 1989 - JULY 31, 1991

(Note: Scales vary with each plot)

TSS
FOR ETHYL CANADA

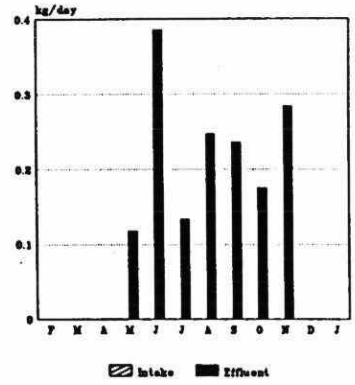


TSS
FOR GE PLASTICS



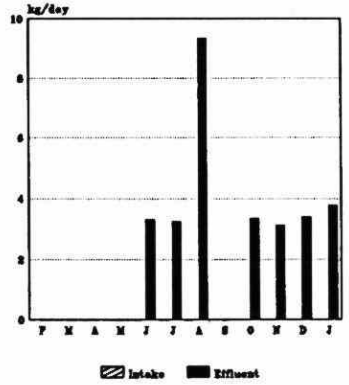
No TSS intake data

TSS
FOR GUARDSMAN PRODUCTS LTD.



No intake data

TSS
FOR MORBERN INC.



No intake data

TSS
FOR NOVACOR (MOORETOWN)

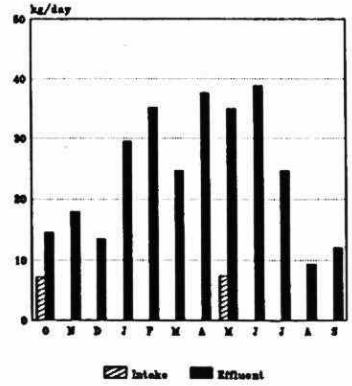


FIGURE D-2

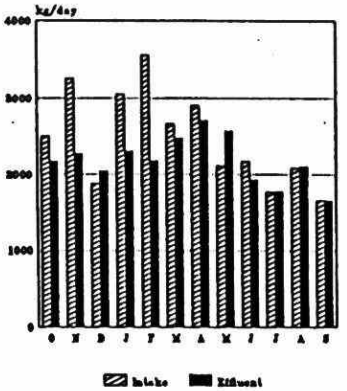
MONTHLY AVERAGE SITE LOADINGS - TSS

OCM SECTOR

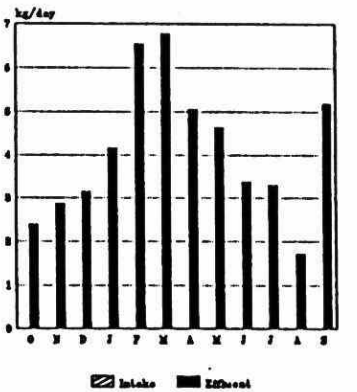
OCTOBER 1, 1989 - JULY 31, 1991

(Note: Scales vary with each plot)

TSS
FOR POLYSAR LTD.

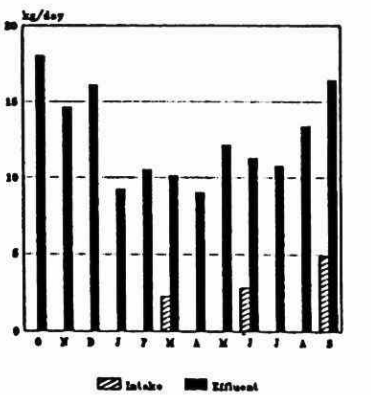


TSS
FOR ROHM AND HAAS (M)



No TSS intake data

TSS
FOR STEPAN



TSS
FOR UNIROYAL

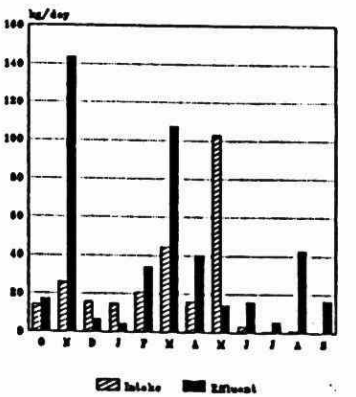


FIGURE D-3

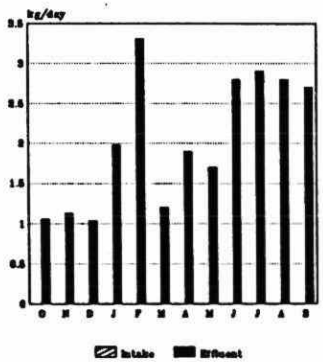
MONTHLY AVERAGE SITE LOADINGS - OIL AND GREASE

OCM SECTOR

OCTOBER 1, 1989 - JULY 31, 1991

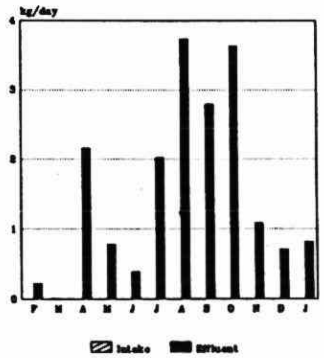
(Note: Scales vary with each plot)

OIL AND GREASE
FOR AKZO CHEMICALS LTD.



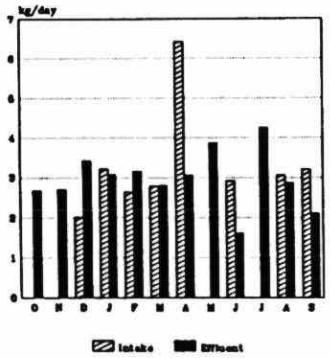
No intake data

OIL AND GREASE
FOR AMOCO CANADA

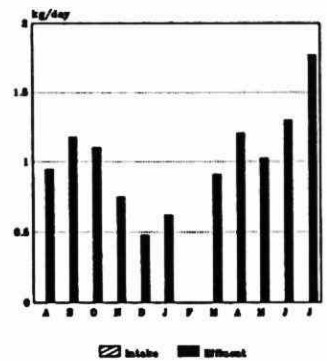


No intake data

OIL AND GREASE
FOR B.F. GOODRICH

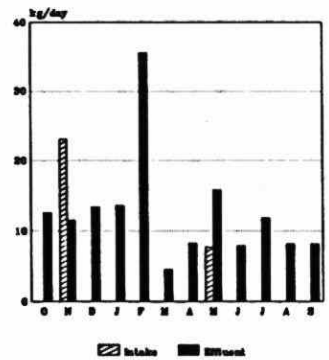


OIL AND GREASE
FOR BASF CANADA INC. (A)



No intake data

OIL AND GREASE
FOR BASF CANADA INC.



OIL AND GREASE
FOR CANADIANOXY

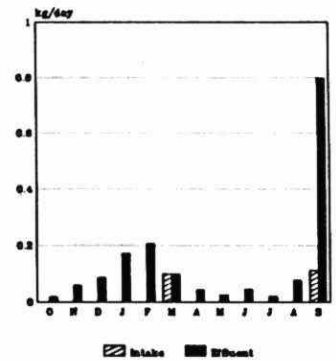


FIGURE D-3

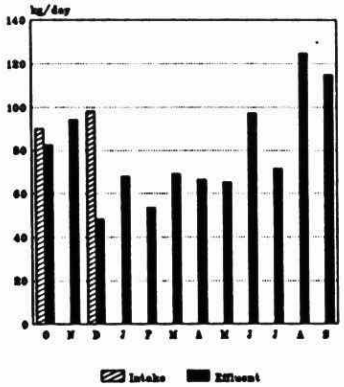
MONTHLY AVERAGE SITE LOADINGS - OIL AND GREASE

OCM SECTOR

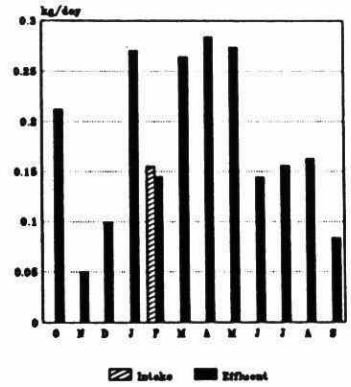
OCTOBER 1, 1989 - JULY 31, 1991

(Note: Scales vary with each plot)

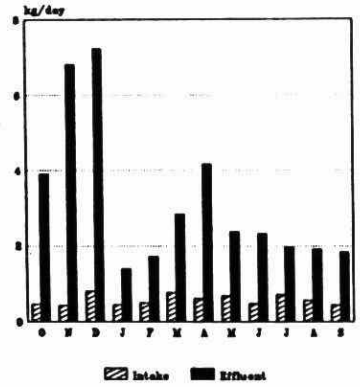
OIL AND GREASE
FOR CELANESE



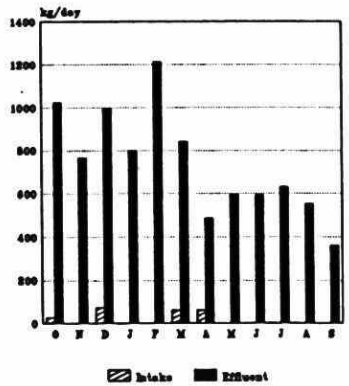
OIL AND GREASE
FOR CHINOOK GROUP



OIL AND GREASE
FOR CORNWALL CHEMICALS



OIL AND GREASE
FOR COURTAULDS FIBRES



OIL AND GREASE
FOR DOW CHEMICAL

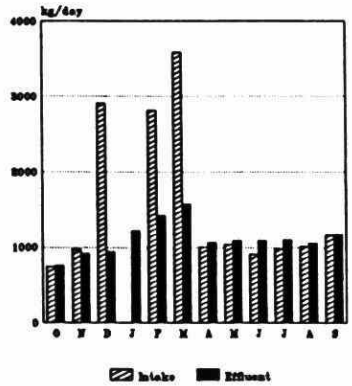


FIGURE D-3

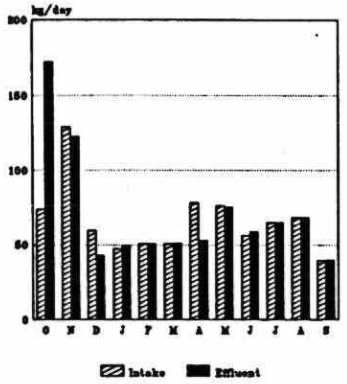
MONTHLY AVERAGE SITE LOADINGS - OIL AND GREASE

OCM SECTOR

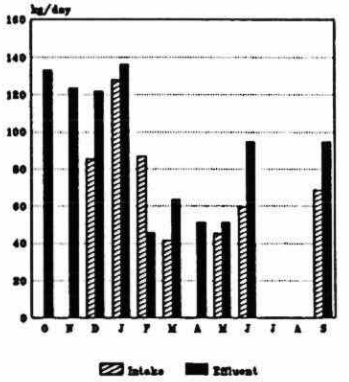
OCTOBER 1, 1989 - JULY 31, 1991

(Note: Scales vary with each plot)

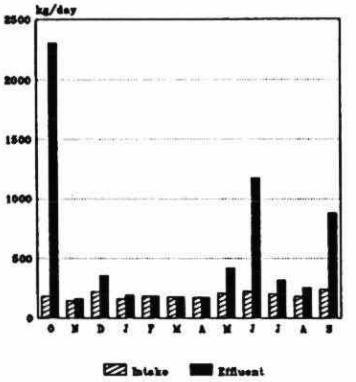
OIL AND GREASE
FOR DU PONT (CORUNNA)



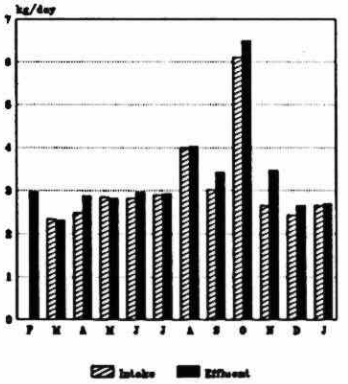
OIL AND GREASE
FOR DU PONT (KINGSTON)



OIL AND GREASE
FOR DU PONT (MAITLAND)



OIL AND GREASE
FOR DU PONT (WHITBY)



OIL AND GREASE
FOR ESSO CHEMICAL

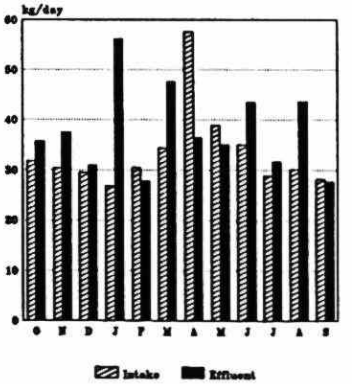


FIGURE D-3

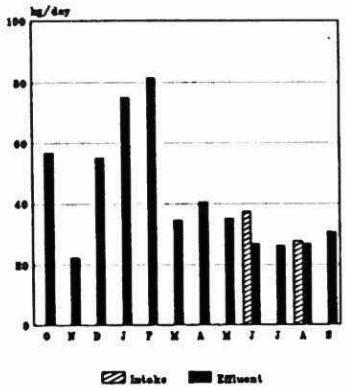
MONTHLY AVERAGE SITE LOADINGS - OIL AND GREASE

OCM SECTOR

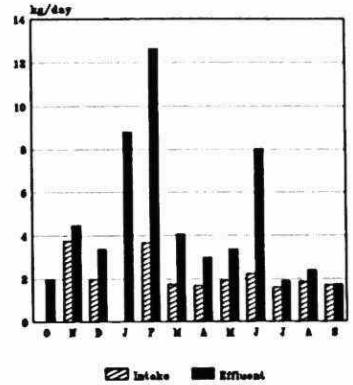
OCTOBER 1, 1989 - JULY 31, 1991

(Note: Scales vary with each plot)

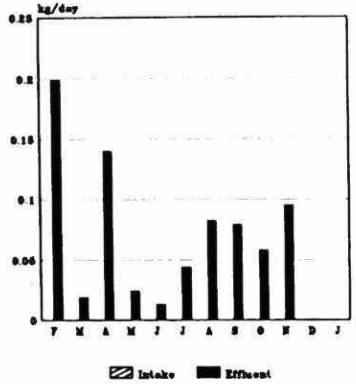
OIL AND GREASE
FOR ETHYL CANADA



OIL AND GREASE
FOR GE PLASTICS

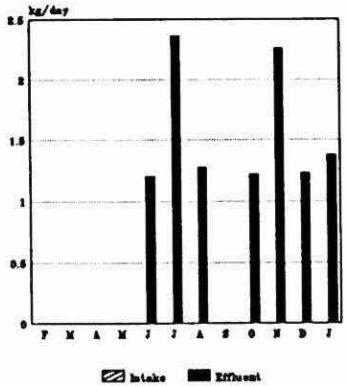


OIL AND GREASE
FOR GUARDSMAN PRODUCTS LTD.



No intake data

OIL AND GREASE
FOR MORBERN INC.



No intake data

OIL AND GREASE
FOR NOVACOR (MOORETOWN)

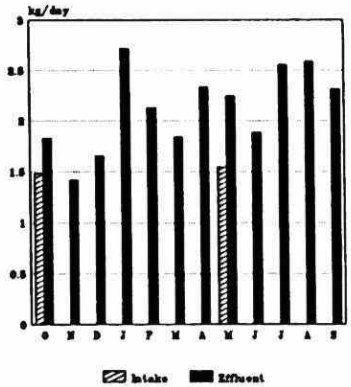


FIGURE D-3

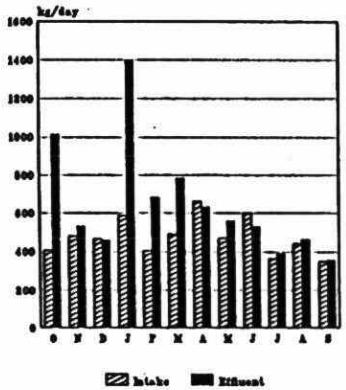
MONTHLY AVERAGE SITE LOADINGS - OIL AND GREASE

OCM SECTOR

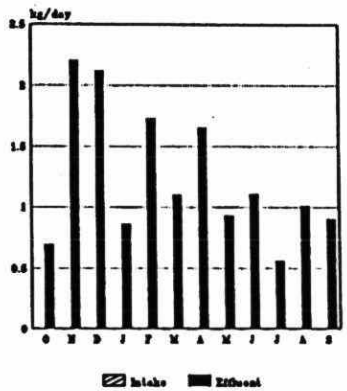
OCTOBER 1, 1989 - JULY 31, 1991

(Note: Scales vary with each plot)

OIL AND GREASE
FOR POLYSAR LTD.

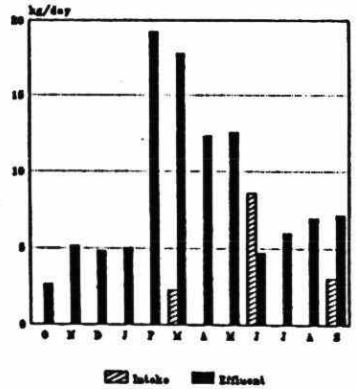


OIL AND GREASE
FOR ROHM AND HAAS (M)

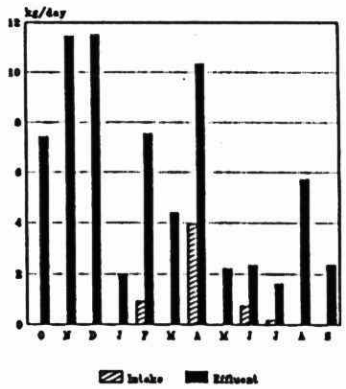


No oil and grease intake data

OIL AND GREASE
FOR STEPAN



OIL AND GREASE
FOR UNIROYAL



APPENDIX E

TWELVE-MONTH AVERAGE CONCENTRATION/FLOW/LOAD TABLES

(BY INDIVIDUAL CONTROL POINTS FOR EACH PLANT)

PAGE

AKZO CHEMICALS LTD. - SARNIA E-2
AMOCO CANADA RESOURCES LTD. - SARNIA E-4
B.F. GOODRICH CANADA INC. - THOROLD E-6
BASF CANADA INC. - ARNPRIOR E-8
BASF CANADA INC. - SARNIA E-10
CANADIANOXY CHEMICALS LTD. - FORT ERIE E-12
CELANESE CANADA INC. - MILLHAVEN E-14
CHINOOK GROUP LTD. - SOMBRA E-16
CORNWALL CHEMICALS LTD. - CORNWALL E-18
COURTAULDS FIBRES CANADA - CORNWALL E-20
DOW CHEMICAL CANADA INC. - SARNIA E-24
DUPONT CANADA INC. - CORUNNA E-38
DUPONT CANADA INC. - KINGSTON E-40
DUPONT CANADA INC. - MAITLAND E-44
DUPONT CANADA INC. - WHITBY E-50
ESSO CHEMICAL CANADA - SARNIA E-52
ETHYL CANADA INC. - CORUNNA E-54
G.E. PLASTICS CANADA LTD. - COBOURG E-58
GUARDSMAN PRODUCTS LTD. - CORNWALL E-60
MORBERN INC. - CORNWALL E-62
NOVACOR CHEMICALS LTD. - MOORETOWN E-64
POLYSAR LTD. - SARNIA E-66
ROHM & HAAS CANADA INC - MORRISBURG E-72
ROHM & HAAS CANADA INC-SCARBOROUGH E-74
STEPAN CANADA INC. - LONGFORD MILLS E-75
UNIROYAL CHEMICAL LTD. - ELMIRA E-77

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – AKZO CHEMICALS LTD. – SARNIA

ATG	PARAMETER	RMDL	UNIT	IN 0600	OT 0100
1	COD	10	mg/L	–	–
3	Hydrogen ion (pH)			–	7.4
4	Ammonia plus Ammonium	0.25	mg/L	–	0.10
4	Nitrate+Nitrite	0.25	mg/L	–	0.27
4	Total Kjeldahl Nitrogen	0.5	mg/L	–	0.2
5	DOC	0.5	mg/L	–	2.2
5	TOC	5	mg/L	–	2
6	Total phosphorus	0.10	mg/L	–	0.10
7	Specific conductance	500	uS/cm	–	432
8	Total suspended solids	5	mg/L	–	6
8	Volatile suspended solids	10	mg/L	–	–
9	Aluminum	30.0	ug/L	–	36.7
9	Zinc	10.0	ug/L	–	14.2
14	Phenolics (4AAP)	2.0	ug/L	–	2.1
25	Oil and grease	1.0	mg/L	–	1.0
98	Ftflow		m3/day	–	2040

EXPLANATORY NOTES:

(i) "–" no concentration data available or not required by regulation

(ii) The average concentration of a parameter that did not qualify as "found" at a given sampling point is shown in smaller size.

(iii) Average concentration values for parameters in ATGs 1, 3 to 8 and 25 are reported even if the parameter did not qualify as "found" at the site.

SAMPLING POINTS
IN 0600 – Intake Water to Site
OT 0100 – Reactor #4 Cooling Water to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – AKZO CHEMICALS LTD. – SARNIA

ATG	PARAMETER	IN 0600	OT 0100	TOTAL
1	COD	–	–	–
4	Ammonia plus Ammonium	–	0.201	0.201
4	Nitrate+Nitrite	–	0.534	0.534
4	Total Kjeldahl Nitrogen	–	0.349	0.349
5	DOC	–	4.116	4.116
5	TOC	–	4.635	4.635
6	Total phosphorus	–	0.204	0.204
8	Total suspended solids	–	10.911	10.911
8	Volatile suspended solids	–	–	–
9	Aluminum	–	0.077	0.077
9	Zinc	–	0.032	0.032
14	Phenolics (4AAP)	–	0.004	0.004
25	Oil and grease	–	2.040	2.040

EXPLANATORY NOTES:
(i) '–' not required by regulation or no conc/flow data available

SAMPLING POINTS:
IN 0600 – Intake Water to Site
OT 0100 – Reactor #4 Cooling Water to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM FEB 1/90 TO JAN 31/91

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – AMOCO CANADA RESOURCES LTD. – SARNIA

ATG	PARAMETER	RMDL	UNIT	IN 0800	CO 0100
1	COD	10	mg/L	–	91
2	Cyanide Total	0.005	mg/L	–	0.006
3	Hydrogen ion (pH)			–	7.8
4	Ammonia plus Ammonium	0.25	mg/L	–	0.08
4	Nitrate+Nitrite	0.25	mg/L	–	0.07
4	Total Kjeldahl Nitrogen	0.5	mg/L	–	1.7
5	DOC	0.5	mg/L	–	20.7
5	TOC	5	mg/L	–	27
6	Total phosphorus	0.10	mg/L	–	0.86
7	Specific conductance	500	uS/cm	–	1335
8	Total suspended solids	5	mg/L	–	23
8	Volatile suspended solids	10	mg/L	–	–
9	Aluminum	30.0	ug/L	–	414.9
9	Boron	50.0	ug/L	–	57.7
9	Copper	10.0	ug/L	–	46.6
9	Molybdenum	20.0	ug/L	–	495.9
9	Zinc	10.0	ug/L	–	46.0
10	Arsenic	5.0	ug/L	–	9.8
12	Mercury	0.10	ug/L	–	0.49
14	Phenolics (4AAP)	2.0	ug/L	–	8.8
15	Sulphide	20.0	ug/L	–	64.5
16	1,1–Dichloroethane	0.8	ug/L	–	2.0
16	1,2–Dichlorobenzene	1.4	ug/L	–	60.5
16	1,4–Dichlorobenzene	1.7	ug/L	–	3.5
16	Bromodichloromethane	0.8	ug/L	–	0.6
16	Carbon tetrachloride	1.3	ug/L	–	7.7
16	Chlorobenzene	0.7	ug/L	–	9.7
16	Chloroform	0.7	ug/L	–	5.2
17	Benzene	0.5	ug/L	–	40.2
17	Toluene	0.5	ug/L	–	16.9
17	m–Xylene and p–Xylene	1.1	ug/L	–	15.4
17	o–Xylene	0.5	ug/L	–	8.0
23	1,2,3–Trichlorobenzene	10.0	ng/L	–	44.7
25	Oil and grease	1.0	mg/L	–	4.1
98	Ftflow		m3/day	–	377

EXPLANATORY NOTES:

(i) "–" no concentration data available or not required by regulation

(ii) The average concentration of a parameter that did not qualify as "found" at a given sampling point is shown in smaller size.

(iii) Average concentration values for parameters in ATGs 1, 3 to 8 and 25 are reported even if the parameter did not qualify as "found" at the site.

SAMPLING POINTS
IN 0800 – Intake Water to Site
CO 0100 – API Separator Effluent to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM FEB 1/90 TO JAN 31/91

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – AMOCO CANADA RESOURCES LTD. – SARNIA

ATG	PARAMETER	IN 0800	CO 0100	TOTAL
1	COD	–	52.109	52.109
2	Cyanide Total	–	0.002	0.002
4	Ammonia plus Ammonium	–	0.061	0.061
4	Nitrate+Nitrite	–	0.017	0.017
4	Total Kjeldahl Nitrogen	–	0.708	0.708
5	DOC	–	7.308	7.308
5	TOC	–	11.684	11.684
6	Total phosphorus	–	0.292	0.292
8	Total suspended solids	–	12.308	12.308
8	Volatile suspended solids	–	–	–
9	Aluminum	–	0.246	0.246
9	Boron	–	0.023	0.023
9	Copper	–	0.021	0.021
9	Molybdenum	–	0.166	0.166
9	Zinc	–	0.020	0.020
10	Arsenic	–	0.004	0.004
12	Mercury	–	*	*
14	Phenolics (4AAP)	–	0.003	0.003
15	Sulphide	–	0.019	0.019
16	1,1–Dichloroethane	–	*	*
16	1,2–Dichlorobenzene	–	0.025	0.025
16	1,4–Dichlorobenzene	–	0.002	0.002
16	Bromodichloromethane	–	*	*
16	Carbon tetrachloride	–	0.002	0.002
16	Chlorobenzene	–	0.003	0.003
16	Chloroform	–	0.002	0.002
17	Benzene	–	0.011	0.011
17	Toluene	–	0.005	0.005
17	m–Xylene and p–Xylene	–	0.004	0.004
17	o–Xylene	–	0.002	0.002
23	1,2,3–Trichlorobenzene	–	*	*
25	Oil and grease	–	1.758	1.758

EXPLANATORY NOTES:
(i) "–" not required by regulation or no conc/flow data available
(ii) "*" loading less than 1 gram/day

SAMPLING POINTS
IN 0800 – Intake Water to Site
CO 0100 – API Separator Effluent to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – B.F. GOODRICH CANADA INC. – THOROLD

ATG	PARAMETER	RMDL	UNIT	IN 0600	PR 0100
1	COD	10	mg/L	29	25
2	Cyanide Total	0.005	mg/L	0.005	0.097
3	Hydrogen ion (pH)			7.8	7.8
4	Ammonia plus Ammonium	0.25	mg/L	0.15	0.29
4	Nitrate+Nitrite	0.25	mg/L	1.08	0.93
4	Total Kjeldahl Nitrogen	0.5	mg/L	0.7	1.3
5	DOC	0.5	mg/L	6.8	11.9
5	TOC	5	mg/L	7	16
6	Total phosphorus	0.10	mg/L	0.08	0.13
7	Specific conductance	500	uS/cm	329	1096
8	Total suspended solids	5	mg/L	24	25
8	Volatile suspended solids	10	mg/L	6	12
9	Aluminum	30.0	ug/L	389.8	535.9
9	Boron	50.0	ug/L	47.4	65.3
9	Molybdenum	20.0	ug/L	13.8	28.4
9	Zinc	10.0	ug/L	16.8	37.5
11	Chromium (hexavalent)	10.0	ug/L	8.8	11.5
14	Phenolics (4AAP)	2.0	ug/L	5.3	7.7
15	Sulphide	20.0	ug/L	27.7	34.3
16	Chloroform	0.7	ug/L	0.7	8.8
16	Methylene chloride	1.3	ug/L	2.6	2.3
16	Trichloroethylene	1.9	ug/L	0.4	4.8
16	Vinyl chloride	4.0	ug/L	0.9	159.0
17	Toluene	0.5	ug/L	0.9	0.8
24	Total O8CDD	30.0	pg/L	162.5	227.5
25	Oil and grease	1.0	mg/L	1.4	1.2
98	Ftflow		m3/day	–	2580

Explanatory Notes:
(i) "–" no concentration data available or not required by regulation
(ii) The average concentration of a parameter that did not qualify as "found" at a given sampling point is shown in smaller size.
(iii) Average concentration values for parameters in ATGs 1, 3 to 8 and 25 are reported even if the parameter did not qualify as "found" at the site.

SAMPLING POINTS
IN 0600 – Intake Water to Site
PR 0100 – Final Effluent to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – B.F. GOODRICH CANADA INC. – THOROLD

ATG	PARAMETER	IN 0600	PR 0100	TOTAL
1	COD	60.478	52.453	52.453
2	Cyanide Total	0.014	0.250	0.250
3	Ammonia plus Ammonium	0.419	0.746	0.746
4	Nitrate+Nitrite	3.126	2.678	2.678
4	Total Kjeldahl Nitrogen	1.975	3.531	3.531
5	DOC	16.707	33.626	33.626
5	TOC	20.878	46.720	46.720
6	Total phosphorus	0.227	0.329	0.329
8	Total suspended solids	67.257	67.210	67.210
8	Volatile suspended solids	15.581	30.492	30.492
9	Aluminum	1.151	1.472	1.472
9	Boron	0.137	0.184	0.184
9	Molybdenum	0.038	0.090	0.090
9	Zinc	0.050	0.097	0.097
11	Chromium (hexavalent)	0.024	0.034	0.034
14	Phenolics (4AAP)	0.016	0.021	0.021
15	Sulphide	0.077	0.093	0.093
16	Chloroform	0.002	0.024	0.024
16	Methylene chloride	0.007	0.007	0.007
16	Trichloroethylene	0.001	0.013	0.013
16	Vinyl chloride	0.003	0.490	0.490
17	Toluene	0.002	0.002	0.002
24	Total O8CDD	*	*	*
25	Oil and grease	3.281	2.992	2.992

EXPLANATORY NOTES:
(i) "–" not required by regulation or no conc/flow data available
(ii) "*" loading less than 1 gram/day

SAMPLING POINTS:
IN 0600 – Intake water to site
PR 0100 – Final Effluent to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM AUG 1/90 TO JULY 31/91

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – BASF CANADA INC. – ARNPRIOR

ATG	PARAMETER	RMDL	UNIT	IN 0300	OT 0100
1	COD	10	mg/L	–	–
3	Hydrogen ion (pH)			–	7.7
4	Ammonia plus Ammonium	0.25	mg/L	–	–
4	Nitrate + Nitrite	0.25	mg/L	–	–
4	Total Kjeldahl Nitrogen	0.5	mg/L	–	1.5
5	DOC	0.5	mg/L	–	5.6
5	TOC	5	mg/L	–	6
6	Total phosphorus	0.10	mg/L	–	0.80
7	Specific conductance	500	uS/cm	–	282
8	Total suspended solids	5	mg/L	–	4
8	Volatile suspended solids	10	mg/L	–	–
9	Aluminum	30.0	ug/L	–	215.8
9	Copper	10.0	ug/L	–	16.5
9	Vanadium	30.0	ug/L	–	35.1
9	Zinc	10.0	ug/L	–	79.1
14	Phenolics (4AAP)	2.0	ug/L	–	3.7
25	Oil and grease	1.0	mg/L	–	0.9
98	Ftflow		m3/day	–	1056

EXPLANATORY NOTES:

(i) "–" no concentration data available or not required by regulation

(ii) The average concentration of a parameter that did not qualify as "found" at a given sampling point is shown in smaller size.

(iii) Average concentration values for parameters in ATGs 1, 3 to 8 and 25 are reported even if the parameter did not qualify as "found" at the site.

SAMPLING POINTS
IN 0300 – Intake Water to Site
OT 0100 – Storm Discharge to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM AUG 1/90 TO JULY 31/91

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – BASF CANADA INC. – ARNPRIOR

ATG	PARAMETER	IN 0300	OT 0100	TOTAL
1	COD	–	–	–
4	Ammonia plus Ammonium	–	–	–
4	Nitrate + Nitrite	–	–	–
4	Total Kjeldahl Nitrogen	–	1.144	1.144
5	DOC	–	5.852	5.852
5	TOC	–	5.888	5.888
6	Total phosphorus	–	0.942	0.942
8	Total suspended solids	–	4.384	4.384
8	Volatile suspended solids	–	–	–
9	Aluminum	–	0.218	0.218
9	Copper	–	0.016	0.016
9	Vanadium	–	0.034	0.034
9	Zinc	–	0.114	0.114
14	Phenolics (4AAP)	–	0.004	0.004
25	Oil and grease	–	1.025	1.025

EXPLANATORY NOTES:
(i) "–" no concentration data available or not required by regulation

SAMPLING POINTS
IN 0300 – Intake Water to Site
OT 0100 – Storm Discharge to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – BASF CANADA INC. – SARNIA

ATG	PARAMETER	RMDL	UNIT	IN 0500	OT 0100	OT 0200
1	COD	10	mg/L	–	–	–
3	Hydrogen ion (pH)			7.7	7.7	7.7
4	Ammonia plus Ammonium	0.25	mg/L	0.20	0.20	0.20
4	Nitrate + Nitrite	0.25	mg/L	–	–	–
4	Total Kjeldahl Nitrogen	0.5	mg/L	0.36	0.42	0.47
5	DOC	0.5	mg/L	1.9	1.9	1.7
5	TOC	5	mg/L	2	4	2
6	Total phosphorus	0.10	mg/L	0.10	0.09	0.10
7	Specific conductance	500	uS/cm	182	192	191
8	Total suspended solids	5	mg/L	3	5	8
8	Volatile suspended solids	10	mg/L	–	–	–
9	Aluminum	30.0	ug/L	30.0	40.8	32.5
9	Copper	10.0	ug/L	12.9	10.8	11.7
9	Lead	30.0	ug/L	30.0	32.5	35.0
9	Zinc	10.0	ug/L	20.0	21.7	22.5
14	Phenolics (4AAP)	2.0	ug/L	5.5	2.3	4.0
17	Ethylbenzene	0.6	ug/L	0.2	7.6	0.3
17	Styrene	0.5	ug/L	1.1	71.1	0.4
17	Toluene	0.5	ug/L	1.2	1.0	0.4
18	Acrylonitrile	4.2	ug/L	0.8	3940.6	2.7
25	Oil and grease	1.0	mg/L	1.1	1.2	6.7
98	Ftflow		m3/day	10549	9378	210

EXPLANATORY NOTES:

(i) "–" no concentration data available or not required by regulation

(ii) The average concentration of a parameter that did not qualify as "found" at a given sampling point is shown in smaller size.

(iii) Average concentration values for parameters in ATGs 1, 3 to 8 and 25 are reported even if the parameter did not qualify as "found" at the site.

SAMPLING POINTS
IN 0500 – Intake Water to Site
OT 0100 – #2 Plant Storm Sewer to River
OT 0200 – #1 Plant Storm Sewer to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – BASF CANADA INC. – SARNIA

ATG	PARAMETER	IN 0500	OT 0100	OT 0200	TOTAL
1	COD	–	–	–	–
4	Ammonia plus Ammonium	2.140	1.876	0.042	1.918
4	Nitrate + Nitrite	–	–	–	–
4	Total Kjeldahl Nitrogen	3.571	3.931	0.097	4.028
5	DOC	20.449	17.935	0.362	18.297
5	TOC	22.224	50.329	0.470	50.799
6	Total phosphorus	1.055	0.879	0.021	0.900
8	Total suspended solids	33.253	46.708	1.782	48.490
8	Volatile suspended solids	–	–	–	–
9	Aluminum	0.535	0.420	0.007	0.427
9	Copper	0.136	0.100	0.002	0.102
9	Lead	0.316	0.307	0.007	0.314
9	Zinc	0.219	0.227	0.004	0.231
14	Phenolics (4AAP)	0.049	0.023	0.001	0.024
17	Ethylbenzene	0.002	0.056	*	0.056
17	Styrene	0.010	0.511	*	0.511
17	Toluene	0.010	0.008	*	0.008
18	Acrylonitrile	0.008	29.688	0.001	29.689
25	Oil and grease	12.195	11.047	1.585	12.632

EXPLANATORY NOTES:
(i) "*" loading less than 1 gram/day

SAMPLING POINTS:
IN 0500 – Intake Water to Site
OT 0100 – #2 Plant Storm Sewer to River
OT 0200 – #1 Plant Storm Sewer to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – CANADIANOXY CHEMICALS LTD. – FORT ERIE

ATG	PARAMETER	RMDL	UNIT	IN 0400	OT 0100
1	COD	10	mg/L	–	–
3	Hydrogen ion (pH)			7.9	8.0
4	Ammonia plus Ammonium	0.25	mg/L	0.03	0.12
4	Nitrate + Nitrite	0.25	mg/L	–	–
4	Total Kjeldahl Nitrogen	0.5	mg/L	0.2	0.5
5	DOC	0.5	mg/L	1.4	2.4
5	TOC	5	mg/L	1	3
6	Total phosphorus	0.10	mg/L	0.01	0.02
7	Specific conductance	500	uS/cm	306	604
8	Total suspended solids	5	mg/L	2	6
8	Volatile suspended solids	10	mg/L	–	–
9	Aluminum	30.0	ug/L	125.0	155.0
9	Chromium	20.0	ug/L	7.0	32.0
9	Zinc	10.0	ug/L	8.5	26.6
14	Phenolics (4AAP)	2.0	ug/L	1.0	33.6
25	Oil and grease	1.0	mg/L	1.0	1.8
98	Ftflow		m3/day	–	76

EXPLANATORY NOTES:
(i) "–" no concentration data available or not required by regulation
(ii) The average concentration of a parameter that did not qualify as "found" at a given sampling point is shown in smaller size.
(iii) Average concentration values for parameters in ATGs 1, 3 to 8 and 25 are reported even if the parameter did not qualify as "found" at the site.

SAMPLING POINTS
IN 0400 – Intake Water to Site
OT 0100 – Final Effluent to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – CANADIANOXY CHEMICALS LTD. – FORT ERIE

ATG	PARAMETER	IN 0400	OT 0100	TOTAL
1	COD	–	–	–
4	Ammonia plus Ammonium	0.003	0.012	0.012
4	Nitrate + Nitrite	–	–	–
4	Total Kjeldahl Nitrogen	0.022	0.048	0.048
5	DOC	0.148	0.190	0.190
5	TOC	0.145	0.173	0.173
6	Total phosphorus	0.001	0.001	0.001
8	Total suspended solids	0.215	0.343	0.343
8	Volatile suspended solids	–	–	–
9	Aluminum	0.014	0.014	0.014
9	Chromium	0.001	0.002	0.002
9	Zinc	0.001	0.002	0.002
14	Phenolics (4AAP)	*	0.004	0.004
25	Oil and grease	0.108	0.139	0.139

EXPLANATORY NOTES:
(i) "*" loading less than 1 gram/day

SAMPLING POINTS:
OT 0100 – Final Effluent to River
IN 0400 – Intake Water to Site

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – CELANESE CANADA INC. – MILLHAVEN

ATG	PARAMETER	RMDL	UNIT	IN 0900	PR 0400	CO 0100	CO 0200	CO 0300
1	COD	10	mg/L	14	30	19	9	9
2	Cyanide Total	0.005	mg/L	0.004	0.003	0.004	0.003	0.003
3	Hydrogen ion (pH)			8.1	8.1	8.1	8.2	8.2
4	Ammonia plus Ammonium	0.25	mg/L	0.05	1.28	0.27	0.05	0.05
4	Nitrate+Nitrite	0.25	mg/L	0.35	2.81	1.02	0.35	0.34
4	Total Kjeldahl Nitrogen	0.5	mg/L	0.4	2.3	0.6	0.4	0.3
5	DOC	0.5	mg/L	2.7	6.7	4.7	2.8	2.4
5	TOC	5	mg/L	3	13	6	3	3
6	Total phosphorus	0.10	mg/L	0.03	1.13	0.44	0.03	0.05
7	Specific conductance	500	uS/cm	315	443	386	319	318
8	Total suspended solids	5	mg/L	9	7	5	3	2
8	Volatile suspended solids	10	mg/L	5	7	5	3	3
9	Aluminum	30.0	ug/L	86.1	53.1	51.7	46.7	53.3
9	Copper	10.0	ug/L	9.7	10.9	5.7	13.1	5.6
9	Zinc	10.0	ug/L	14.0	17.4	9.5	21.5	13.9
10	Antimony	5.0	ug/L	1.0	71.3	35.9	1.0	5.0
11	Chromium (hexavalent)	10.0	ug/L	17.4	12.8	10.5	6.9	6.1
12	Mercury	0.10	ug/L	0.06	0.07	0.07	0.06	0.06
14	Phenolics (4AAP)	2.0	ug/L	0.6	0.8	0.8	0.9	1.4
15	Sulphide	20.0	ug/L	9.0	17.3	24.3	11.0	20.3
16	1,2–Dichloroethane	0.8	ug/L	0.7	0.7	0.7	0.7	0.7
16	Bromodichloromethane	0.8	ug/L	0.3	7.5	1.9	0.3	0.3
16	Chloroform	0.7	ug/L	0.9	0.8	1.3	1.1	1.7
16	Chloromethane	3.7	ug/L	16.1	1.4	1.5	1.2	1.7
16	Methylene chloride	1.3	ug/L	3.3	1.2	2.9	2.2	2.5
17	Benzene	0.5	ug/L	0.4	0.4	0.5	1.3	0.5
17	Toluene	0.5	ug/L	0.4	0.3	0.2	0.3	0.3
19	Biphenyl	0.6	ug/L	0.2	0.2	0.2	0.2	1.1
19	Bis(2–ethylhexyl) phthalate	2.2	ug/L	0.3	1.6	1.5	0.3	3.4
19	Di–n–butyl phthalate	3.8	ug/L	0.8	4.5	4.0	10.6	4.4
23	1,2,3,4–Tetrachlorobenzene	10.0	ng/L	37.5	1.2	1.7	1.2	1.2
23	1,2,3,5–Tetrachlorobenzene	10.0	ng/L	6.3	2.1	2.1	2.1	2.1
23	1,2,3–Trichlorobenzene	10.0	ng/L	40.9	3.2	3.4	3.2	3.2
23	1,2,4–Trichlorobenzene	10.0	ng/L	134.9	4.0	5.9	7.5	1.8
23	Pentachlorobenzene	10.0	ng/L	4.4	1.1	1.1	1.1	1.1
24	Total O8CDD	30.0	pg/L	23.0	46.0	20.0	20.3	20.3
25	Oil and grease	1.0	mg/L	1.5	1.4	1.1	1.1	1.1
98	Ftflow		m3/day	80678	4023	12019	36741	27042

EXPLANATORY NOTES:

(i) The average concentration of a parameter that did not qualify as "found" at a given sampling point is shown in smaller size.

(ii) Average concentration values for parameters in ATGs 1, 3 to 8 and 25 are reported even if the parameter did not qualify as "found" at the site.

SAMPLING POINTS:

IN 0900 – Intake Water to Site
PR 0400 – Treatment Plant Effluent flows into CO 0100
CO 0100 – Centre Outfall to Lake
CO 0200 – West Outfall to Lake
CO 0300 – East Outfall to Lake

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – CELANESE CANADA INC. – MILLHAVEN

ATG	PARAMETER	IN 0900	PR 0400	CO 0100	CO 0200	CO 0300	TOTAL
1	COD	[illegible]	123.436	203.084	307.719	224.347	735.150
2	Cyanide Total	[illegible]	0.012	0.050	0.106	0.081	0.237
4	Ammonia plus Ammonium	[illegible]	5.491	2.430	1.808	1.607	5.845
4	Nitrate+Nitrite	[illegible]	10.826	12.476	12.571	10.458	35.505
4	Total Kjeldahl Nitrogen	[illegible]	9.715	6.823	12.764	9.264	28.851
5	DOC	[illegible]	26.757	54.268	92.504	62.644	209.416
5	TOC	[illegible]	56.878	67.368	109.335	92.822	269.525
6	Total phosphorus	[illegible]	4.403	5.126	0.892	1.218	7.236
8	Total suspended solids	[illegible]	30.744	51.191	116.279	65.144	232.614
8	Volatile suspended solids	[illegible]	30.012	69.179	107.594	89.374	266.147
9	Aluminum	[illegible]	0.205	0.592	1.557	1.095	3.244
9	Copper	[illegible]	0.042	0.071	0.453	0.131	0.655
9	Zinc	[illegible]	0.067	0.107	0.862	0.246	1.215
10	Antimony	[illegible]	0.239	0.425	0.038	0.179	0.642
11	Chromium (hexavalent)	[illegible]	0.051	0.099	0.201	0.130	0.430
12	Mercury	[illegible]	*	0.001	0.003	0.001	0.005
14	Phenolics (4AAP)	[illegible]	0.003	0.009	0.031	0.035	0.075
15	Sulphide	[illegible]	0.065	0.260	0.400	0.578	1.238
16	1,2–Dichloroethane	[illegible]	0.003	0.008	0.025	0.018	0.051
16	Bromodichloromethane	[illegible]	0.027	0.029	0.010	0.011	0.050
16	Chloroform	[illegible]	0.003	0.012	0.031	0.044	0.087
16	Chloromethane	[illegible]	0.005	0.018	0.049	0.017	0.084
16	Methylene chloride	[illegible]	0.005	0.031	0.092	0.052	0.175
17	Benzene	[illegible]	0.002	0.005	0.038	0.014	0.057
17	Toluene	[illegible]	0.001	0.003	0.010	0.008	0.021
19	Biphenyl	[illegible]	0.001	0.002	0.005	0.027	0.034
19	Bis(2–ethylhexyl) phthalate	[illegible]	0.006	0.012	0.011	0.100	0.123
19	Di–n–butyl phthalate	[illegible]	0.017	0.034	0.253	0.128	0.415
23	1,2,3,4–Tetrachlorobenzene	[illegible]	*	*	*	*	*
23	1,2,3,5–Tetrachlorobenzene	*	*	*	*	*	*
23	1,2,3–Trichlorobenzene	[illegible]	*	*	*	*	*
23	1,2,4–Trichlorobenzene	[illegible]	*	*	*	*	*
23	Pentachlorobenzene	*	*	*	*	*	*
24	Total O8CDD	*	*	*	*	*	*
25	Oil and grease	[illegible]	5.569	14.318	38.204	28.136	80.658

EXPLANATORY NOTES:
(i) "*" loading less than 1 gram/day

SAMPLING POINTS:
IN 0900 – Intake Water to Site
PR 0400 – Treatment Plant Effluent flows into CO 0100
CO 0100 – Centre Outfall to Lake
CO 0200 – West Outfall to Lake
CO 0300 – East Outfall to Lake

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – CHINOOK GROUP LTD. – SOMBRA

ATG	PARAMETER	RMDL	UNIT	IN 0400	CO 0100
1	COD	10	mg/L	[illegible]	453
3	Hydrogen ion (pH)			[illegible]	8.3
4	Ammonia plus Ammonium	0.25	mg/L	[illegible]	1.63
4	Nitrate+Nitrite	0.25	mg/L	[illegible]	1.00
4	Total Kjeldahl Nitrogen	0.5	mg/L	[illegible]	17.8
5	DOC	0.5	mg/L	[illegible]	77.0
5	TOC	5	mg/L	–	135
6	Total phosphorus	0.10	mg/L	[illegible]	4.36
7	Specific conductance	500	uS/cm	[illegible]	961
8	Total suspended solids	5	mg/L	[illegible]	15
8	Volatile suspended solids	10	mg/L	[illegible]	10
9	Aluminum	30.0	ug/L	[illegible]	282.4
9	Chromium	20.0	ug/L	[illegible]	93.5
9	Copper	10.0	ug/L	[illegible]	8.5
9	Zinc	10.0	ug/L	[illegible]	137.5
10	Arsenic	5.0	ug/L	[illegible]	4.9
11	Chromium (hexavalent)	10.0	ug/L	–	21.2
15	Sulphide	20.0	ug/L	[illegible]	35.0
16	Bromodichloromethane	0.8	ug/L	[illegible]	0.9
16	Chloroform	0.7	ug/L	[illegible]	2.5
16	Chloromethane	3.7	ug/L	[illegible]	4.5
16	Methylene chloride	1.3	ug/L	[illegible]	270.7
17	Benzene	0.5	ug/L	[illegible]	0.5
19	Benzylbutylphthalate	0.6	ug/L	[illegible]	0.6
19	Bis(2–ethylhexyl) phthalate	2.2	ug/L	[illegible]	2.6
19	Diphenyl ether	0.4	ug/L	[illegible]	1.1
23	1,2,4–Trichlorobenzene	10.0	ng/L	[illegible]	10.0
23	Hexachlorobutadiene	10.0	ng/L	[illegible]	10.0
24	Total P5CDD	20.0	pg/L	[illegible]	60.0
24	Total H6CDD	30.0	pg/L	[illegible]	40.5
24	Total O8CDD	30.0	pg/L	[illegible]	53.5
25	Oil and grease	1.0	mg/L	[illegible]	1.6
27	PCBT	0.1	ug/L	[illegible]	0.2
98	Ftflow		m3/day	[illegible]	134

EXPLANATORY NOTES:

(i) "–" no concentration data available or not required by regulation

(ii) The average concentration of a parameter that did not qualify as "found" at a given sampling point is shown in smaller size.

(iii) Average concentration values for parameters in ATGs 1, 3 to 8 and 25 are reported even if the parameter did not qualify as "found" at the site.

SAMPLING POINTS

IN 0400 – Intake Water to Site

CO 0100 – Sump Effluent to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – CHINOOK GROUP LTD. – SOMBRA

ATG	PARAMETER	IN 0400	CO 0100	TOTAL
1	COD	1.232	77.172	77.172
4	Ammonia plus Ammonium	0.005	0.173	0.173
4	Nitrate+Nitrite	0.077	0.125	0.125
4	Total Kjeldahl Nitrogen	0.039	2.394	2.394
5	DOC	0.439	11.001	11.001
5	TOC	–	16.797	16.797
6	Total phosphorus	0.009	0.456	0.456
8	Total suspended solids	0.209	1.772	1.772
8	Volatile suspended solids	0.187	1.738	1.738
9	Aluminum	0.043	0.040	0.040
9	Chromium	*	0.007	0.007
9	Copper	0.014	0.001	0.001
9	Zinc	0.003	0.009	0.009
10	Arsenic	*	0.001	0.001
11	Chromium (hexavalent)	–	0.001	0.001
15	Sulphide	0.002	0.005	0.005
16	Bromodichloromethane	*	*	*
16	Chloroform	*	0.001	0.001
16	Chloromethane	0.001	0.001	0.001
16	Methylene chloride	0.036	0.036	0.036
17	Benzene	*	*	*
19	Benzylbutylphthalate	*	*	*
19	Bis(2–ethylhexyl) phthalate	0.001	*	*
19	Diphenyl ether	*	*	*
23	1,2,4–Trichlorobenzene	*	*	*
23	Hexachlorobutadiene	*	*	*
24	Total P5CDD	*	*	*
24	Total H6CDD	*	*	*
24	Total O8CDD	*	*	*
25	Oil and grease	0.155	0.181	0.181
27	PCBT	*	*	*

EXPLANATORY NOTES:
(i) "–" not required by regulation or no conc/flow data available
(ii) "*" loading less than 1 gram/day

SAMPLING POINTS:
IN 0400 – Intake Water to Site
CO 0100 – Sump Effluent to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – CORNWALL CHEMICALS LTD. – CORNWALL

ATG	PARAMETER	RMDL	UNIT	IN 0300	PR 0100
1	COD	10	mg/L	5	98
3	Hydrogen ion (pH)			7.9	6.5
4	Ammonia plus Ammonium	0.25	mg/L	0.15	0.31
4	Nitrate+Nitrite	0.25	mg/L	0.27	0.19
4	Total Kjeldahl Nitrogen	0.5	mg/L	0.4	1.0
5	DOC	0.5	mg/L	3.2	5.9
5	TOC	5	mg/L	–	7
6	Total phosphorus	0.10	mg/L	0.04	0.17
7	Specific conductance	500	uS/cm	229	1744
8	Total suspended solids	5	mg/L	5	19
8	Volatile suspended solids	10	mg/L	–	11
9	Aluminum	30.0	ug/L	73.0	381.8
9	Beryllium	10.0	ug/L	12.2	3.3
9	Boron	50.0	ug/L	–	105.9
9	Cadmium	2.0	ug/L	9.0	0.9
9	Copper	10.0	ug/L	17.1	16.8
9	Molybdenum	20.0	ug/L	31.8	18.8
9	Nickel	20.0	ug/L	13.1	166.1
9	Thallium	30.0	ug/L	33.0	13.4
9	Vanadium	30.0	ug/L	67.0	17.8
9	Zinc	10.0	ug/L	14.3	117.8
11	Chromium (hexavalent)	10.0	ug/L	–	5.0
12	Mercury	0.10	ug/L	0.33	3.06
14	Phenolics (4AAP)	2.0	ug/L	2.4	1.0
15	Sulphide	20.0	ug/L	13.6	5304.1
16	Bromodichloromethane	0.8	ug/L	3.5	2.6
16	Carbon tetrachloride	1.3	ug/L	0.4	16877.4
16	Chloroform	0.7	ug/L	8.6	89.4
16	Chloromethane	3.7	ug/L	1.1	73.8
16	Methylene chloride	1.3	ug/L	0.7	5.9
16	Tetrachloroethylene	1.1	ug/L	0.4	1.2
16	Trichloroethylene	1.9	ug/L	0.4	2.2
23	1,2,3–Trichlorobenzene	10.0	ng/L	12.0	11.2
23	Hexachlorobenzene	10.0	ng/L	3.7	41.6
23	Hexachlorobutadiene	10.0	ng/L	5.4	44.1
23	Hexachlorocyclopentadiene	10.0	ng/L	17.0	12.6
23	Hexachloroethane	10.0	ng/L	3.9	542.4
24	Total H7CDD	30.0	pg/L	–	53.0
24	Total H7CDF	30.0	pg/L	–	31.0
24	Total O8CDD	30.0	pg/L	–	90.0
25	Oil and grease	1.0	mg/L	0.9	4.7
98	Ftflow		m3/day	–	655

EXPLANATORY NOTES:
(i) "–" no concentration data available or not required by regulation
(ii) The average concentration of a parameter that did not qualify as "found" at a given sampling point is shown in smaller size.
(iii) Average concentration values for parameters in ATGs 1, 3 to 8 and 25 are reported even if the parameter did not qualify as "found" at the site.

SAMPLING POINTS
IN 0300 – Intake Water to Site
PR 0100 – Manhole 26 Effluent to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – CORNWALL CHEMICALS LTD. – CORNWALL

ATG	PARAMETER	IN 0300	PR 0100	TOTAL
1	COD	3.250	58.465	58.465
4	Ammonia plus Ammonium	0.101	0.168	0.168
4	Nitrate+Nitrite	0.188	0.096	0.096
4	Total Kjeldahl Nitrogen	0.264	0.534	0.534
5	DOC	2.175	3.885	3.885
5	TOC	–	4.744	4.744
6	Total phosphorus	0.024	0.106	0.106
8	Total suspended solids	3.284	11.947	11.947
8	Volatile suspended solids	–	5.758	5.758
9	Aluminum	0.049	0.225	0.225
9	Beryllium	0.008	0.002	0.002
9	Boron	–	0.070	0.070
9	Cadmium	0.006	0.001	0.001
9	Copper	0.011	0.010	0.010
9	Molybdenum	0.020	0.012	0.012
9	Nickel	0.008	0.088	0.088
9	Thallium	0.021	0.008	0.008
9	Vanadium	0.040	0.010	0.010
9	Zinc	0.009	0.080	0.080
11	Chromium (hexavalent)	–	0.003	0.003
12	Mercury	*	0.002	0.002
14	Phenolics (4AAP)	0.002	*	*
15	Sulphide	0.008	3.564	3.564
16	Bromodichloromethane	0.002	0.002	0.002
16	Carbon tetrachloride	*	11.361	11.361
16	Chloroform	0.005	0.056	0.056
16	Chloromethane	0.001	0.046	0.046
16	Methylene chloride	*	0.004	0.004
16	Tetrachloroethylene	*	0.001	0.001
16	Trichloroethylene	*	0.001	0.001
23	1,2,3–Trichlorobenzene	*	*	*
23	Hexachlorobenzene	*	*	*
23	Hexachlorobutadiene	*	*	*
23	Hexachlorocyclopentadiene	*	*	*
23	Hexachloroethane	*	*	*
24	Total H7CDD	–	*	*
24	Total H7CDF	–	*	*
24	Total O8CDD	–	*	*
25	Oil and grease	0.561	3.196	3.196

EXPLANATORY NOTES:
(i) "–" not required by the regulation or no conc/flow data available
(ii) "*" loading less than 1 gram/day

SAMPLING POINTS:
IN 0300 – Intake Water to Site
PR 0100 – Manhole 26 Effluent to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – COURTAULDS FIBRES CANADA – CORNWALL

ATG	PARAMETER	RMDL	UNIT	IN 1300	PR 0100	PR 0300	CO 0500	CO 0600	CO 0700	CO 0800
1	COD	10	mg/L	15	537	810	28	16	17	131
2	Cyanide Total	0.005	mg/L	0.001	0.004	0.007	0.001	0.001	0.001	0.001
3	Hydrogen ion (pH)			8.0	2.1	11.1	7.7	6.9	6.6	6.7
4	Ammonia plus Ammonium	0.25	mg/L	0.18	0.25	0.16	0.05	0.15	0.11	0.10
4	Nitrate+Nitrite	0.25	mg/L	0.24	0.48	0.37	0.80	0.63	0.41	0.32
4	Total Kjeldahl Nitrogen	0.5	mg/L	1.2	0.6	1.2	0.4	0.2	0.2	0.3
5	DOC	0.5	mg/L	4.0	210.0	80.2	6.5	4.9	5.0	5.1
5	TOC	5	mg/L	3	211	98	6	4	4	4
6	Total phosphorus	0.10	mg/L	0.15	0.14	0.12	0.12	0.08	0.10	0.08
7	Specific conductance	500	uS/cm	310	8299	3388	366	411	386	433
8	Total suspended solids	5	mg/L	1	91	111	13	9	7	7
8	Volatile suspended solids	10	mg/L	1	73	56	8	7	6	6
9	Aluminum	30.0	ug/L	125.2	394.3	205.7	178.7	89.7	110.5	96.8
9	Boron	50.0	ug/L	62.3	50.4	41.0	28.8	27.2	26.3	32.0
9	Cadmium	2.0	ug/L	1.8	3.2	1.5	1.3	1.3	1.3	1.3
9	Chromium	20.0	ug/L	3.4	115.5	49.4	16.7	5.9	4.9	8.5
9	Copper	10.0	ug/L	4.1	61.2	26.2	32.3	24.1	8.6	7.0
9	Lead	30.0	ug/L	9.7	238.0	91.9	11.8	12.0	12.0	13.5
9	Nickel	20.0	ug/L	4.7	32.8	14.6	7.4	7.2	6.3	8.0
9	Zinc	10.0	ug/L	79.7	52384.9	2459.9	560.4	1242.6	1489.6	1410.5
10	Antimony	5.0	ug/L	2.5	7.3	1.8	2.0	1.4	2.0	2.0
11	Chromium (hexavalent)	10.0	ug/L	20.0	47.0	–	18.0	–	20.0	20.0
12	Mercury	0.10	ug/L	0.07	10.26	4.73	0.27	0.18	0.18	0.14
14	Phenolics (4AAP)	2.0	ug/L	2.2	17.4	18.6	2.5	3.7	3.1	3.6
15	Sulphide	20.0	ug/L	191.9	29656.4	94172.1	4029.7	1097.3	1628.3	1308.7

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – COURTAULDS FIBRES CANADA – CORNWALL

ATG	PARAMETER	RMDL	UNIT	IN 1300	PR 0100	PR 0300	CO 0500	CO 0600	CO 0700	CO 0800
16	1,2–Dichloroethane	0.8	ug/L	0.5	1.1	1.1	1.1	1.1	1.4	1.1
16	Chloroform	0.7	ug/L	2.1	31.9	15.6	1.6	1.2	1.3	1.3
16	Methylene chloride	1.3	ug/L	1.8	1.1	3.8	1.9	1.7	2.0	2.3
17	Toluene	0.5	ug/L	0.4	1.1	1.2	0.8	2.7	6.0	4.9
19	Diphenyl ether	0.4	ug/L	0.5	0.5	0.5	0.3	0.3	0.3	0.3
20	Phenol	2.4	ug/L	0.7	2.1	1.6	0.8	0.7	0.7	0.7
25	Oil and grease	1.0	mg/L	0.8	100.7	62.1	1.9	1.7	1.8	3.6
98	Ftflow		m3/day	–	5426	1524	10077	31604	6447	11167

EXPLANATORY NOTES:
(i) "–" no concentration data available or not required by regulation
(ii) The average concentration of a parameter that did not qualify as "found" at a given sampling point is shown in smaller size.
(iii) Average concentration values for parameters in ATGs 1, 3 to 8 and 25 are reported even if the parameter did not qualify as "found" at the site.

SAMPLING POINTS:
IN 1300 – Intake to Site
PR 0100 – Acid Sewer to River
PR 0300 – Alkaline Sewer to River
CO 0500 – Storm Sewer to River
CO 0600 – Acid Recovery Sewer to River
CO 0700 – CS2 Sewer to River
CO 0800 – Caravelle Sewer to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – COURTAULDS FIBRES CANADA – CORNWALL

ATG	PARAMETER	IN 1300	PR 0100	PR 0300	CO 0500	CO 0600	CO 0700	CO 0800	TOTAL
1	COD	1032.725	3405.330	1417.503	241.493	595.836	104.605	1184.212	6948.979
2	Cyanide Total	0.098	0.030	0.019	0.008	0.044	0.007	0.013	0.121
4	Ammonia plus Ammonium	12.355	1.678	0.210	0.288	4.691	0.876	0.868	8.611
4	Nitrate+Nitrite	15.977	2.484	0.586	5.775	21.009	2.439	3.240	35.533
4	Total Kjeldahl Nitrogen	81.175	3.219	0.988	2.228	8.421	1.493	2.530	18.879
5	DOC	273.664	1066.466	124.576	58.955	153.143	33.229	57.521	1493.890
5	TOC	174.964	1063.755	155.111	50.426	120.620	26.580	41.438	1457.930
6	Total phosphorus	10.197	0.811	0.206	1.046	2.423	0.601	0.902	5.989
8	Total suspended solids	71.593	497.948	172.095	137.350	261.414	46.346	76.809	1191.962
8	Volatile suspended solids	71.593	393.743	74.958	71.534	200.989	41.462	63.469	846.155
9	Aluminum	8.123	1.970	0.295	1.579	2.906	0.679	0.987	8.416
9	Boron	4.515	0.230	0.065	0.276	0.887	0.159	0.331	1.948
9	Cadmium	0.116	0.015	0.002	0.012	0.040	0.008	0.013	0.090
9	Chromium	0.226	0.612	0.055	0.160	0.181	0.029	0.087	1.124
9	Copper	0.271	0.307	0.039	0.156	0.772	0.055	0.074	1.403
9	Lead	0.627	1.257	0.155	0.113	0.394	0.073	0.147	2.139
9	Nickel	0.317	0.156	0.022	0.079	0.241	0.038	0.088	0.624
9	Zinc	5.701	273.601	2.932	5.074	37.717	10.144	15.923	345.391
10	Antimony	0.175	0.038	0.006	0.024	0.055	0.014	0.021	0.158
11	Chromium (hexavalent)	1.276	0.255	–	0.178	–	0.119	0.226	0.778
12	Mercury	0.004	0.056	0.007	0.002	0.006	0.001	0.002	0.074
14	Phenolics (4AAP)	0.140	0.092	0.044	0.027	0.139	0.021	0.037	0.360
15	Sulphide	13.699	161.415	147.138	41.909	34.238	10.678	14.614	409.992

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – COURTAULDS FIBRES CANADA – CORNWALL

ATG	PARAMETER	IN 1300	PR 0100	PR 0300	CO 0500	CO 0600	CO 0700	CO 0800	TOTAL
16	1,2–Dichloroethane	0.035	0.005	0.001	0.009	0.033	0.009	0.012	0.069
16	Chloroform	0.127	0.169	0.022	0.013	0.038	0.008	0.015	0.265
16	Methylene chloride	0.111	0.005	0.007	0.014	0.053	0.013	0.023	0.115
17	Toluene	0.023	0.004	0.001	0.007	0.089	0.038	0.052	0.191
19	Diphenyl ether	0.033	0.003	0.001	0.003	0.010	0.002	0.003	0.022
20	Phenol	0.049	0.010	0.002	0.008	0.027	0.005	0.007	0.059
25	Oil and grease	55.933	517.943	87.482	19.559	53.911	12.044	36.326	727.265

EXPLANATORY NOTES:
(i) "–" not required by regulation or no conc/flow data available
(ii) "*" loading less than 1 gram/day

SAMPLING POINTS:
IN 1300 – Intake Water to Site
PR 0100 – Acid Sewer to River
PR 0300 – Alkaline Sewer to River
CO 0500 – Storm Sewer to River
CO 0600 – Acid Recovery Sewer to River
CO 0700 – CS2 Sewer to River
CO 0800 – Caravelle Sewer to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – DOW CHEMICAL CANADA INC. – SARNIA

ATG	PARAMETER	RMDL	UNIT	IN 0100	PR 1200	PR 1600	PR 1700	PR 1900	PR 2000	PR 2100	CO 0200	CO 0500
1	COD	10	mg/L	8	76	31	53	1723	63	101	6	8
2	Cyanide Total	0.005	mg/L	0.004	0.006	0.005	0.005	0.005	0.005	0.009	0.005	0.005
3	Hydrogen ion (pH)			8.1	7.6	11.0	7.7	7.5	7.9	7.6	8.1	8.2
4	Ammonia plus Ammonium	0.25	mg/L	0.03	0.03	0.03	0.04	2.87	0.08	3.67	0.03	0.09
4	Nitrate+Nitrite	0.25	mg/L	0.50	3.89	0.21	0.30	0.03	1.56	0.03	0.28	0.36
4	Total Kjeldahl Nitrogen	0.5	mg/L	0.4	0.6	0.5	0.7	1.5	1.1	3.0	0.6	1.0
5	DOC	0.5	mg/L	2.1	2.4	5.5	7.7	4.9	3.9	22.4	2.3	2.3
5	TOC	5	mg/L	2	2	5	8	6	4	24	2	2
6	Total phosphorus	0.10	mg/L	0.07	0.07	8.14	0.10	0.29	0.08	0.27	0.07	0.05
7	Specific conductance	500	uS/cm	244	13815	5800	11705	88332	4047	5445	206	882
8	Total suspended solids	5	mg/L	4	8	76	23	34	11	5	6	5
8	Volatile suspended solids	10	mg/L	4	4	22	12	15	4	4	3	3
9	Aluminum	30.0	ug/L	32.8	34.8	184.1	129.9	415.5	68.3	66.2	56.0	102.3
9	Boron	50.0	ug/L	11.0	16.4	28.8	63.5	49.3	27.7	3408.8	9.3	9.5
9	Chromium	20.0	ug/L	3.8	5.8	44.4	11.4	5.9	4.9	11.4	5.8	3.3
9	Copper	10.0	ug/L	3.0	12.2	71.8	24.8	9.9	5.9	5.4	10.3	3.5
9	Lead	30.0	ug/L	24.0	35.0	82.3	73.0	35.0	157.9	24.0	24.0	24.0
9	Molybdenum	20.0	ug/L	18.0	65.4	49.7	67.0	35.9	18.1	25.3	18.0	18.8
9	Nickel	20.0	ug/L	6.0	17.0	86.5	145.4	42.5	7.7	8.1	6.0	6.0
9	Vanadium	30.0	ug/L	16.0	4.1	6.8	4.8	7.5	39.0	42.3	15.5	14.0
9	Zinc	10.0	ug/L	9.0	13.5	129.5	182.8	31.6	6.7	5.4	3.0	3.3
12	Mercury	0.10	ug/L	0.06	0.09	0.13	0.11	0.73	0.09	0.13	0.09	0.13
14	Phenolics (4AAP)	2.0	ug/L	7.3	5.6	2.3	8.1	32.1	20.6	9.7	5.6	7.0
15	Sulphide	20.0	ug/L	47.5	65.0	475.0	40.0	112.5	42.5	62.5	42.5	45.0

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – DOW CHEMICAL CANADA INC. – SARNIA

ATG	PARAMETER	RMDL	UNIT	IN 0100	PR 1200	PR 1600	PR 1700	PR 1900	PR 2000	PR 2100	CO 0200	CO 0500
16	1,1,2,2–Tetrachloroethane	4.3	ug/L	0.8	0.7	0.6	15.9	0.7	0.8	0.7	0.8	0.9
16	1,1,2–Trichloroethane	0.6	ug/L	0.3	0.2	0.2	124.2	0.2	0.3	15.6	0.7	0.4
16	1,1–Dichloroethane	0.8	ug/L	0.3	0.2	0.2	246.5	0.2	0.3	38.7	1.4	0.4
16	1,1–Dichloroethylene	2.8	ug/L	0.4	0.4	3.9	22.0	1.5	0.4	0.4	0.6	0.5
16	1,2–Dichloroethane	0.8	ug/L	0.4	0.5	1.1	1070.0	3.4	0.6	0.6	11.7	0.5
16	1,2–Dichloropropane	0.9	ug/L	0.2	58.4	0.2	38.6	26.8	0.2	5.2	4.8	4.3
16	Bromodichloromethane	0.8	ug/L	0.3	4.5	2.8	2.6	0.3	0.3	0.3	0.3	0.3
16	Bromoform	3.7	ug/L	0.6	6.9	0.6	7.5	0.4	0.5	0.5	0.6	0.6
16	Carbon tetrachloride	1.3	ug/L	1.0	0.9	140.1	15.3	0.9	0.8	0.8	33.4	1.2
16	Chloroform	0.7	ug/L	0.5	2.2	51.1	8.6	0.4	0.4	2.3	1.8	0.7
16	Chloromethane	3.7	ug/L	13.9	1.2	1.4	1.1	1.3	2.2	1.1	8.0	12.7
16	Cis–1,3–Dichloropropylene	1.4	ug/L	0.4	0.5	1.2	4.5	0.5	0.4	0.7	1.1	0.5
16	Dibromochloromethane	1.1	ug/L	0.4	11.3	3.8	7.5	0.4	0.4	6.6	0.5	0.5
16	Methylene chloride	1.3	ug/L	0.5	4.3	3.8	42.2	4.9	0.4	0.3	0.8	0.5
16	Tetrachloroethylene	1.1	ug/L	0.7	0.9	303.8	73.5	1.1	1.1	0.9	40.9	3.1
16	Trichloroethylene	1.9	ug/L	0.4	0.4	0.6	27.6	0.4	0.4	0.4	3.5	0.5
16	Vinyl chloride	4.0	ug/L	2.7	0.7	0.7	47.2	0.7	1.2	0.7	1.5	1.0
17	Benzene	0.5	ug/L	0.3	0.3	0.1	0.1	1.4	0.2	0.2	0.3	0.2
17	Ethylbenzene	0.6	ug/L	0.3	0.5	2.2	0.1	0.8	0.5	0.3	0.3	0.2
17	Styrene	0.5	ug/L	0.4	0.4	0.2	0.1	0.9	0.5	0.3	0.4	0.3
17	m–Xylene and p–Xylene	1.1	ug/L	0.7	0.9	7.1	0.2	1.1	1.0	0.6	0.7	0.5
17	o–Xylene	0.5	ug/L	0.3	0.4	3.0	0.1	0.9	0.5	0.3	0.4	0.3

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – DOW CHEMICAL CANADA INC. – SARNIA

ATG	PARAMETER	RMDL	UNIT	IN 0100	PR 1200	PR 1600	PR 1700	PR 1900	PR 2000	PR 2100	CO 0200	CO 0500
19	2,6–Dinitrotoluene	0.7	ug/L	0.5	0.5	1.0	0.6	0.7	0.9	0.8	1.7	1.1
19	2–Chloronaphthalene	1.8	ug/L	1.5	1.8	1.1	1.5	1.6	1.5	1.5	1.5	1.5
19	Benzylbutylphthalate	0.6	ug/L	0.1	0.1	1.0	0.1	0.1	0.1	0.1	0.1	0.2
19	Biphenyl	0.6	ug/L	1.0	1.1	1.0	1.0	1.1	1.0	1.0	1.0	1.0
19	Bis(2–chloroethyl)ether	4.4	ug/L	1.4	1.4	375.3	1.4	15.8	1.4	1.4	1.4	1.4
19	Bis(2–chloroisopropyl)ether	2.2	ug/L	1.2	54.7	1.6	5.8	66.6	1.2	2.1	1.2	6.8
19	Bis(2–ethylhexyl) phthalate	2.2	ug/L	0.8	0.5	6.2	0.7	0.4	1.4	0.9	0.5	0.7
19	Di–n–butyl phthalate	3.8	ug/L	1.4	1.4	9.3	1.4	1.4	1.5	1.5	1.4	1.4
19	N–Nitrosodi–n–propylamine	3.1	ug/L	0.9	0.9	117.6	1.4	5.1	1.3	0.9	1.0	0.9
19	Naphthalene	1.6	ug/L	1.2	1.5	0.9	1.2	1.3	1.2	1.2	1.2	1.2
20	2,3,4,5–Tetrachlorophenol	0.4	ug/L	0.4	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5
20	2,3,4–Trichlorophenol	0.6	ug/L	0.4	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5
20	Phenol	2.4	ug/L	2.1	2.4	12.0	2.4	5.3	2.4	2.4	2.4	2.4
23	1,2,4,5–Tetrachlorobenzene	10.0	ng/L	6.5	7.3	1.5	2.0	25.3	7.0	3.2	7.0	7.0
23	1,2,4–Trichlorobenzene	10.0	ng/L	15.8	23.6	1.7	1966.3	9.0	9.0	1667.6	157.3	23.2
23	2,4,5–Trichlorotoluene	10.0	ng/L	8.3	7.7	1.7	856.6	5.3	9.0	397.7	77.9	9.8
23	Hexachlorobenzene	10.0	ng/L	3.4	18.2	165.0	723.3	3.6	7.0	42.8	30.8	8.9
23	Hexachlorobutadiene	10.0	ng/L	7.6	4.3	1.3	82.9	3.0	6.8	416.6	106.1	10.8
23	Hexachlorocyclopentadiene	10.0	ng/L	4.5	5.1	165.9	1.7	3.1	5.0	2.5	5.0	5.0
23	Hexachloroethane	10.0	ng/L	4.8	4.3	4588.2	155.0	3.0	6.3	394.4	96.1	7.9
23	Octachlorostyrene	10.0	ng/L	8.8	7.7	1.7	2.3	5.0	9.0	734.6	15.2	10.3

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – DOW CHEMICAL CANADA INC. – SARNIA

ATG	PARAMETER	RMDL	UNIT	IN 0100	PR 1200	PR 1600	PR 1700	PR 1900	PR 2000	PR 2100	CO 0200	CO 0500
24	Total T4CDF	15.0	pg/L	3.4	956.1	1078.3	93.1	104.8	3.8	3.4	3.4	69.2
24	Total P5CDD	20.0	pg/L	9.9	54.1	9.9	9.9	9.9	9.9	9.9	9.9	9.9
24	Total P5CDF	15.0	pg/L	5.7	2444.7	5.7	407.9	15.1	5.7	5.7	5.7	236.4
24	Total H6CDD	30.0	pg/L	3.0	184.8	3.0	7.7	3.3	3.0	3.0	3.0	3.0
24	Total H6CDF	20.0	pg/L	7.1	5625.7	7.1	941.7	34.7	7.1	7.1	7.1	399.6
24	Total H7CDD	30.0	pg/L	13.2	564.9	13.2	13.2	13.2	13.2	13.2	13.2	46.1
24	Total H7CDF	30.0	pg/L	10.7	9517.1	60.2	1869.0	56.4	48.0	41.0	10.7	251.4
24	Total O8CDD	30.0	pg/L	22.4	871.5	49.5	226.2	64.5	34.3	45.9	48.1	97.3
24	Total O8CDF	30.0	pg/L	27.9	13250.8	567.7	5701.0	140.6	262.0	606.2	27.9	208.0
25	Oil and grease	1.0	mg/L	1.5	1.1	2.1	1.4	4.7	1.3	46.1	1.3	1.2
98	Ftflow		m3/day	–	669	576	1099	8650	1042	130	82887	48783

EXPLANATORY NOTES:
(i) "–" no concentration data available or not required by regulation
(ii) The average concentration of a parameter that did not qualify as "found" at a given sampling point is shown in smaller size.
(iii) Average concentration values for parameters in ATGs 1, 3–8 and 25 are reported even if the parameter did not qualify as "found" at the site.

SAMPLING POINTS
IN 0100 – Intake Water to Site
PR 1200 – Throx Stripper Effluent flows into CO 0500
PR 1600 – Tank Car Wash (Building 88) flows into CO 0900
PR 1700 – Block 90 Feed (Buildings 35 & 39) flows into CO 0900
PR 1900 – Biox Plant Effluent flows into CO 0900
PR 2000 – Boiler Feedwater Effluent flows into CO 0900
PR 2100 – Scott Road Treated Runoff to River
CO 0200 – 42 inch Outfall to River
CO 0500 – 54 inch Sluice Outfall to River
CO 0600 – 2nd Street Outfall to River
CO 0700 – 3rd Street Outfall to River
CO 0900 – 4th Street Outfall to River
OT 0300 – 48 inch Outfall to River
OT 1000 – 5th Street Outfall to River
WA 2200 – Lasalle Road Runoff to River
WA 2300 – Lasalle Road Runoff to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – DOW CHEMICAL CANADA INC. – SARNIA

ATG	PARAMETER	RMDL	UNIT	IN 0100	CO 0600	CO 0700	CO 0900	OT 0300	OT 1000	WA 2200	WA 2300
1	COD	10	mg/L	6	11	19	14	–	–	–	–
2	Cyanide Total	0.005	mg/L	0.004	0.005	0.005	0.005	–	–	–	–
3	Hydrogen ion (pH)			8.1	8.1	8.1	8.1	8.2	8.1	7.6	7.8
4	Ammonia plus Ammonium	0.25	mg/L	0.03	0.03	0.03	0.03	–	–	–	–
4	Nitrate+Nitrite	0.25	mg/L	0.50	0.28	0.30	0.29	–	0.32	–	–
4	Total Kjeldahl Nitrogen	0.5	mg/L	0.4	0.5	0.6	0.5	–	–	–	–
5	DOC	0.5	mg/L	2.1	2.3	2.1	2.4	2.5	2.1	12.0	13.7
5	TOC	5	mg/L	2	2	2	2	2	2	12	14
6	Total phosphorus	0.10	mg/L	0.07	0.06	0.09	0.11	0.06	0.09	0.46	0.35
7	Specific conductance	500	uS/cm	244	213	205	2373	214	213	3471	1981
8	Total suspended solids	5	mg/L	4	7	6	6	4	14	23	15
8	Volatile suspended solids	10	mg/L	4	3	3	3	–	–	7	6
9	Aluminum	30.0	ug/L	32.8	35.0	25.0	58.3	–	–	294.4	359.9
9	Boron	50.0	ug/L	11.0	9.3	9.8	9.5	–	–	85.5	152.1
9	Chromium	20.0	ug/L	3.8	4.5	3.0	6.0	–	–	26.4	6.4
9	Copper	10.0	ug/L	3.0	3.0	3.3	7.0	–	–	9.6	8.5
9	Lead	30.0	ug/L	24.0	24.0	24.0	36.0	–	–	24.0	22.7
9	Molybdenum	20.0	ug/L	18.0	18.3	18.0	124.5	–	–	24.8	20.1
9	Nickel	20.0	ug/L	6.0	6.0	6.0	18.0	–	–	6.2	6.4
9	Vanadium	30.0	ug/L	16.0	16.3	15.8	4.5	–	–	55.5	56.0
9	Zinc	10.0	ug/L	3.0	3.0	3.0	144.8	–	–	23.4	20.9
12	Mercury	0.10	ug/L	0.08	0.09	0.09	0.09	–	0.10	0.12	0.25
14	Phenolics (4AAP)	2.0	ug/L	7.3	4.9	7.1	10.0	6.0	5.6	18.5	7.9
15	Sulphide	20.0	ug/L	47.5	30.0	37.5	35.0	–	–	–	–

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – DOW CHEMICAL CANADA INC. – SARNIA

ATG	PARAMETER	RMDL	UNIT	IN 0100	CO 0600	CO 0700	CO 0900	OT 0300	OT 1000	WA 2200	WA 2300
16	1,1,2,2–Tetrachloroethane	4.3	ug/L	0.8	0.9	0.8	0.8	0.9	0.8	–	–
16	1,1,2–Trichloroethane	0.6	ug/L	0.3	1.3	0.3	0.3	0.4	0.3	–	–
16	1,1–Dichloroethane	0.8	ug/L	0.3	0.5	0.3	0.3	0.4	0.3	–	–
16	1,1–Dichloroethylene	2.8	ug/L	0.5	0.5	0.5	0.5	0.5	0.5	–	–
16	1,2–Dichloroethane	0.8	ug/L	0.4	8.4	0.6	1.2	0.5	9.0	–	–
16	1,2–Dichloropropane	0.9	ug/L	0.2	6.9	0.3	1.2	0.3	0.8	–	–
16	Bromodichloromethane	0.8	ug/L	0.3	0.3	0.3	0.3	0.3	0.3	–	–
16	Bromoform	3.7	ug/L	0.6	0.6	0.6	0.6	0.6	0.6	–	–
16	Carbon tetrachloride	1.3	ug/L	1.0	1.7	1.5	1.3	1.2	1.3	–	–
16	Chloroform	0.7	ug/L	0.5	0.6	0.6	0.6	0.7	0.8	–	–
16	Chloromethane	3.7	ug/L	13.9	11.8	12.0	10.0	13.8	3.5	–	–
16	Cis–1,3–Dichloropropylene	1.4	ug/L	0.4	0.5	0.5	0.6	0.5	0.5	–	–
16	Dibromochloromethane	1.1	ug/L	0.4	0.5	0.5	0.5	0.5	0.5	–	–
16	Methylene chloride	1.3	ug/L	0.8	3.9	0.5	0.5	0.5	0.4	–	–
16	Tetrachloroethylene	1.1	ug/L	0.2	1.7	0.8	0.8	0.9	3.0	–	–
16	Trichloroethylene	1.9	ug/L	0.4	0.6	0.5	0.5	0.5	0.5	–	–
16	Vinyl chloride	4.0	ug/L	2.7	1.1	2.0	1.7	1.1	1.4	–	–
17	Benzene	0.5	ug/L	0.3	0.4	0.3	1.2	–	0.2	–	–
17	Ethylbenzene	0.6	ug/L	0.3	0.4	0.5	3.7	–	0.4	–	–
17	Styrene	0.5	ug/L	0.4	0.4	0.5	0.7	–	0.4	–	–
17	m–Xylene and p–Xylene	1.1	ug/L	0.7	0.7	0.8	0.7	–	0.7	–	–
17	o–Xylene	0.5	ug/L	0.3	0.4	0.4	0.4	–	0.4	–	–

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – DOW CHEMICAL CANADA INC. – SARNIA

ATG	PARAMETER	RMDL	UNIT	IN 0100	CO 0600	CO 0700	CO 0900	OT 0300	OT 1000	WA 2200	WA 2300
19	2,6–Dinitrotoluene	0.7	ug/L	0.5	0.7	2.0	1.2	–	–	–	–
19	2–Chloronaphthalene	1.8	ug/L	1.5	1.5	1.5	1.5	–	–	–	–
19	Benzylbutylphthalate	0.6	ug/L	0.1	0.1	0.1	0.1	–	–	–	–
19	Biphenyl	0.6	ug/L	1.0	1.0	1.0	1.0	–	–	–	–
19	Bis(2–chloroethyl)ether	4.4	ug/L	1.4	1.4	1.4	1.4	–	–	–	–
19	Bis(2–chloroisopropyl)ether	2.2	ug/L	1.2	2.2	1.2	3.1	–	–	–	–
19	Bis(2–ethylhexyl) phthalate	2.2	ug/L	0.8	1.0	0.6	0.3	–	–	–	–
19	Di–n–butyl phthalate	3.8	ug/L	1.4	2.2	1.4	1.4	–	–	–	–
19	N–Nitrosodi–n–propylamine	3.1	ug/L	0.9	0.9	0.9	0.9	–	–	–	–
19	Naphthalene	1.6	ug/L	1.2	1.2	1.2	1.2	–	–	–	–
20	2,3,4,5–Tetrachlorophenol	0.4	ug/L	0.4	0.5	0.5	0.5	–	0.4	–	–
20	2,3,4–Trichlorophenol	0.6	ug/L	0.4	0.5	0.5	0.5	–	0.2	–	–
20	Phenol	2.4	ug/L	2.1	2.4	2.4	2.6	–	2.4	–	–
23	1,2,4,5–Tetrachlorobenzene	10.0	ng/L	6.5	7.0	7.0	7.0	7.0	–	–	–
23	1,2,4–Trichlorobenzene	10.0	ng/L	15.8	30.6	13.3	14.1	17.9	–	–	–
23	2,4,5–Trichlorotoluene	10.0	ng/L	8.3	10.3	9.0	12.8	9.2	–	–	–
23	Hexachlorobenzene	10.0	ng/L	3.5	3.9	3.6	3.2	7.9	–	–	–
23	Hexachlorobutadiene	10.0	ng/L	7.6	16.8	6.2	6.5	12.2	–	–	–
23	Hexachlorocyclopentadiene	10.0	ng/L	4.6	5.0	5.0	5.5	5.0	–	–	–
23	Hexachloroethane	10.0	ng/L	4.8	6.8	5.2	6.1	6.5	–	–	–
23	Octachlorostyrene	10.0	ng/L	8.8	9.7	11.4	9.4	9.2	–	–	–

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – DOW CHEMICAL CANADA INC. – SARNIA

ATG	PARAMETER	RMDL	UNIT	IN 0100	CO 0600	CO 0700	CO 0900	OT 0300	OT 1000	WA 2200	WA 2300
24	Total T4CDF	15.0	pg/L	3.4	3.4	3.4	3.4	–	–	–	–
24	Total P5CDD	20.0	pg/L	9.9	9.9	9.9	9.9	–	–	–	–
24	Total P5CDF	15.0	pg/L	5.7	5.7	5.7	5.7	–	–	–	–
24	Total H6CDD	30.0	pg/L	3.0	3.0	3.0	3.0	–	–	–	–
24	Total H6CDF	20.0	pg/L	7.1	7.1	7.1	7.1	–	–	–	–
24	Total H7CDD	30.0	pg/L	13.2	13.2	13.2	13.2	–	–	–	–
24	Total H7CDF	30.0	pg/L	10.7	10.7	10.7	10.7	–	–	–	–
24	Total O8CDD	30.0	pg/L	22.4	122.2	22.4	22.4	–	–	–	–
24	Total O8CDF	30.0	pg/L	27.9	27.9	27.9	27.9	–	–	–	–
25	Oil and grease	1.0	mg/L	1.5	1.2	1.1	1.1	1.9	1.1	1.1	1.6
98	Ftflow		m3/day	–	53872	102070	566351	60422	13238	**	**
98	Volume Discharged – Total		m3	**	**	**	**	**	**	3993	1486

EXPLANATORY NOTES:
(i) "–" no concentration data available or not required by regulation
(ii) "**" parameter does not pertain to this stream
(iii) The average concentration of a parameter that did not qualify as "found" at a given sampling point is shown in smaller size.
(iv) Average concentration values for parameters in ATGs 1, 3–8 and 25 are reported even if the parameter did not qualify as "found" at the site.

SAMPLING POINTS
IN 0100 – Intake Water to Site
PR 1200 – Throx Stripper Effluent flows into CO 0500
PR 1600 – Tank Car Wash (Building 88) flows into CO 0900
PR 1700 – Block 90 Feed (Buildings 35 & 39) flows into CO 0900
PR 1900 – Biox Plant Effluent flows into CO 0900
PR 2000 – Boiler Feedwater Effluent flows into CO 0900
PR 2100 – Scott Road Treated Runoff to River
CO 0200 – 42 inch Outfall to River
CO 0500 – 54 inch Sluice Outfall to River
CO 0600 – 2nd Street Outfall to River
CO 0700 – 3rd Street Outfall to River
CO 0900 – 4th Street Outfall to River
OT 0300 – 48 inch Outfall to River
OT 1000 – 5th Street Outfall to River
WA 2200 – Lasalle Road Runoff to River
WA 2300 – Lasalle Road Runoff to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – DOW CHEMICAL CANADA INC. – SARNIA

ATG	PARAMETER	IN 0100	PR 1200	PR 1600	PR 1700	PR 1900	PR 2000	PR 2100	CO 0200	CO 0500
1	COD	7340.385	44.131	10.838	60.713	13958.067	73.492	13.384	462.368	468.946
2	Cyanide Total	3.711	0.003	0.002	0.006	0.044	0.005	0.001	0.372	0.273
4	Ammonia plus Ammonium	23.194	0.015	0.011	0.047	28.263	0.084	0.326	1.859	2.364
4	Nitrate+Nitrite	463.877	3.570	0.093	0.330	0.283	1.790	0.004	20.611	16.557
4	Total Kjeldahl Nitrogen	347.908	0.338	0.194	0.835	13.118	1.220	0.294	40.189	34.041
5	DOC	1960.343	1.634	2.957	8.437	43.551	4.171	2.912	184.700	107.254
5	TOC	1858.290	1.566	3.036	8.498	50.461	4.123	3.159	166.532	100.536
6	Total phosphorus	64.943	0.047	1.679	0.116	2.645	0.079	0.024	4.584	2.244
8	Total suspended solids	3813.994	6.752	45.573	24.649	303.627	12.534	0.643	408.427	221.676
8	Volatile suspended solids	4052.427	2.220	8.305	13.105	127.542	3.743	0.497	223.150	163.567
9	Aluminum	30.384	0.025	0.236	0.147	3.666	0.078	0.007	3.588	4.848
9	Boron	10.205	0.011	0.014	0.071	0.365	0.031	0.395	0.688	0.515
9	Chromium	3.479	0.004	0.027	0.013	0.052	0.006	0.002	0.526	0.174
9	Copper	2.783	0.008	0.080	0.028	0.089	0.007	*	1.020	0.185
9	Lead	22.266	0.024	0.131	0.088	0.304	0.195	0.003	1.785	1.308
9	Molybdenum	16.700	0.038	0.025	0.076	0.298	0.019	0.002	1.507	1.323
9	Nickel	5.567	0.012	0.056	0.169	0.373	0.009	0.001	0.446	0.327
9	Vanadium	14.844	0.003	0.005	0.005	0.065	0.044	0.006	1.124	0.875
9	Zinc	2.783	0.009	0.242	0.222	0.257	0.007	0.001	0.223	0.167
12	Mercury	0.076	*	*	*	0.005	*	*	0.007	0.006
14	Phenolics (4AAP)	6.776	0.004	0.001	0.009	0.297	0.024	0.001	0.377	0.266
15	Sulphide	44.068	0.038	0.181	0.046	0.987	0.047	0.004	3.035	1.770

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – DOW CHEMICAL CANADA INC. – SARNIA

ATG	PARAMETER	IN 0100	PR 1200	PR 1600	PR 1700	PR 1900	PR 2000	PR 2100	CO 0200	CO 0500
16	1,1,2,2–Tetrachloroethane	0.737	*	*	0.018	0.006	0.001	*	0.070	0.042
16	1,1,2–Trichloroethane	0.283	*	*	0.138	0.002	*	0.002	0.053	0.018
16	1,1–Dichloroethane	0.285	*	*	0.280	0.002	*	0.005	0.108	0.018
16	1,1–Dichloroethylene	0.439	*	0.007	0.025	0.013	*	*	0.050	0.026
16	1,2–Dichloroethane	0.408	*	*	1.155	0.030	*	*	0.962	0.025
16	1,2–Dichloropropane	0.231	0.033	*	0.046	0.215	*	0.001	0.334	0.203
16	Bromodichloromethane	0.262	0.002	0.002	0.002	0.003	*	*	0.024	0.014
16	Bromoform	0.521	0.004	*	0.009	0.004	*	*	0.047	0.031
16	Carbon tetrachloride	0.968	*	0.091	0.017	0.008	0.001	*	2.728	0.059
16	Chloroform	0.500	0.001	0.027	0.010	0.003	*	*	0.146	0.033
16	Chloromethane	12.935	0.001	*	0.001	0.011	0.002	*	0.582	0.494
16	Cis–1,3–Dichloropropylene	0.405	*	*	0.005	0.004	0.001	*	0.079	0.023
16	Dibromochloromethane	0.379	0.007	0.003	0.009	0.003	*	0.001	0.036	0.023
16	Methylene chloride	0.435	0.002	0.001	0.048	0.039	*	*	0.072	0.022
16	Tetrachloroethylene	0.695	0.001	0.154	0.082	0.010	0.001	*	3.291	0.123
16	Trichloroethylene	0.409	*	*	0.030	0.004	0.001	*	0.283	0.023
16	Vinyl chloride	2.474	*	*	0.058	0.006	0.001	*	0.112	0.050
17	Benzene	0.314	*	*	*	0.013	*	*	0.017	0.011
17	Ethylbenzene	0.299	*	0.001	*	0.008	*	*	0.022	0.011
17	Styrene	0.326	*	*	*	0.008	*	*	0.026	0.016
17	m–Xylene and p–Xylene	0.620	0.001	0.003	*	0.009	0.001	*	0.048	0.027
17	o–Xylene	0.321	*	0.001	*	0.008	*	*	0.026	0.016
19	2,6–Dinitrotoluene	0.464	*	*	0.001	0.006	0.001	*	0.091	0.035
19	2–Chloronaphthalene	1.392	0.001	*	0.001	0.015	0.002	*	0.093	0.048
19	Benzylbutylphthalate	0.093	*	*	*	0.001	*	*	0.008	0.009
19	Biphenyl	0.928	0.001	*	0.001	0.009	0.001	*	0.074	0.055
19	Bis(2–chloroethyl)ether	1.299	0.001	0.088	0.002	0.138	0.002	*	0.104	0.076
19	Bis(2–chloroisopropyl)ether	1.113	0.031	0.001	0.007	0.564	0.001	*	0.089	0.149
19	Bis(2–ethylhexyl) phthalate	0.742	*	0.001	0.001	0.003	0.002	*	0.030	0.030
19	Di–n–butyl phthalate	1.299	0.001	0.002	0.002	0.012	0.002	*	0.104	0.076
19	N–Nitrosodi–n–propylamine	0.835	0.001	0.024	0.001	0.045	0.001	*	0.073	0.049
19	Naphthalene	1.113	0.001	*	0.001	0.012	0.001	*	0.075	0.039

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – DOW CHEMICAL CANADA INC. – SARNIA

ATG	PARAMETER	IN 0100	PR 1200	PR 1600	PR 1700	PR 1900	PR 2000	PR 2100	CO 0200	CO 0500
20	2,3,4,5–Tetrachlorophenol	0.375	*	*	*	0.004	0.001	*	0.033	0.023
20	2,3,4–Trichlorophenol	0.395	*	*	0.001	0.005	0.001	*	0.030	0.018
20	Phenol	1.989	0.002	0.003	0.003	0.044	0.003	*	0.178	0.131
23	1,2,4,5–Tetrachlorobenzene	0.006	*	*	*	*	*	*	0.001	*
23	1,2,4–Trichlorobenzene	0.015	*	*	0.002	*	*	*	0.012	0.001
23	2,4,5–Trichlorotoluene	0.008	*	*	0.001	*	*	*	0.006	*
23	Hexachlorobenzene	0.003	*	*	0.001	*	*	*	0.002	*
23	Hexachlorobutadiene	0.007	*	*	*	*	*	*	0.009	*
23	Hexachlorocyclopentadiene	0.004	*	*	*	*	*	*	*	*
23	Hexachloroethane	0.004	*	0.002	*	*	*	*	0.007	*
23	Octachlorostyrene	0.008	*	*	*	*	*	*	0.001	*
24	Total T4CDF	*	*	*	*	*	*	*	*	*
24	Total P5CDD	*	*	*	*	*	*	*	*	*
24	Total P5CDF	*	*	*	*	*	*	*	*	*
24	Total H6CDD	*	*	*	*	*	*	*	*	*
24	Total H6CDF	*	*	*	*	*	*	*	*	*
24	Total H7CDD	*	*	*	*	*	*	*	*	*
24	Total H7CDF	*	*	*	*	*	*	*	*	*
24	Total O8CDD	*	*	*	*	*	*	*	*	*
24	Total O8CDF	*	*	*	*	*	*	*	*	*
25	Oil and grease	1402.763	0.757	1.054	1.573	37.932	1.513	5.890	104.557	60.525

EXPLANATORY NOTES:
(i) "–" not required in the regulation or no conc/flow data available
(ii) "*" loading less than 1 gram/day

SAMPLING POINTS:
IN 0100 – Intake Water to Site
PR 1200 – Throx Stripper Effluent flows into CO 0500
PR 1600 – Tank Car Wash (Building 88) flows into CO 0900
PR 1700 – Block 90 Feed (Building 35 & 39) flow into CO 0900
PR 1900 – Biox Plant Effluent flows onto CO 0900
PR 2000 – Boiler Feedwater Effluent flows into CO 0900
PR 2100 – Scott Road Treated Runoff to River
CO 0200 – 42 inch Outfall to River
CO 0500 – 54 inch Sluice Outfall to River
CO 0600 – 2nd Street Outfall to River
CO 0700 – 3rd Street Outfall to River
CO 0900 – 4th Street Outfall to River
OT 0300 – 48 inch Outfall to River
OT 1000 – 5th Street Outfall to River
WA 2200 – Lasalle Road Runoff to River
WA 2300 – Lasalle Road Runoff to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – DOW CHEMICAL CANADA INC. – SARNIA

ATG	PARAMETER	IN 0100	CO 0600	CO 0700	CO 0900	OT 0300	OT 1000	WA 2200	WA 2300	TOTAL
1	COD	7340.385	597.413	2162.768	7817.566	–	–	–	–	11522.445
2	Cyanide Total	3.711	0.272	0.508	2.819	–	–	–	–	4.245
4	Ammonia plus Ammonium	23.194	1.357	2.967	14.925	–	–	–	–	23.798
4	Nitrate+Nitrite	463.877	14.915	31.027	166.127	–	4.258	–	–	253.499
4	Total Kjeldahl Nitrogen	347.908	28.797	65.727	310.500	–	–	–	–	479.548
5	DOC	1960.343	122.221	218.951	1338.542	150.995	27.238	51.822	20.149	2224.784
5	TOC	1858.290	117.557	204.857	1284.578	111.293	25.634	52.589	20.495	2087.230
6	Total phosphorus	64.943	3.500	9.020	67.888	3.680	1.109	0.780	0.771	93.600
8	Total suspended solids	3813.994	368.549	579.511	3043.319	246.038	171.326	167.629	22.568	5229.686
8	Volatile suspended solids	4052.427	162.890	305.549	1726.448	–	–	39.950	8.572	2630.623
9	Aluminum	30.384	1.975	2.561	35.518	–	–	1.600	0.546	50.643
9	Boron	10.205	0.501	0.989	5.495	–	–	0.212	0.193	8.988
9	Chromium	3.479	0.260	0.306	3.453	–	–	0.249	0.010	4.980
9	Copper	2.783	0.163	0.336	4.028	–	–	0.035	0.012	5.779
9	Lead	22.366	1.303	2.445	20.717	–	–	0.096	0.035	27.692
9	Molybdenum	16.700	0.944	1.704	57.634	–	–	0.089	0.033	63.236
9	Nickel	5.567	0.326	0.611	10.358	–	–	0.024	0.010	12.103
9	Vanadium	14.844	0.880	1.601	2.599	–	–	0.192	0.089	7.366
9	Zinc	2.763	0.163	0.306	91.421	–	–	0.048	0.036	92.365
12	Mercury	0.076	0.005	0.009	0.052	–	0.001	*	*	0.080
14	Phenolics (4AAP)	6.776	0.274	0.702	5.580	0.368	0.073	0.070	0.012	7.723
15	Sulphide	44.068	1.671	4.022	20.802	–	–	–	–	31.304

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – DOW CHEMICAL CANADA INC. – SARNIA

ATG	PARAMETER	IN 0100	CO 0600	CO 0700	CO 0900	OT 0300	OT 1000	WA 2200	WA 2300	TOTAL
16	1,1,2,2–Tetrachloroethane	0.737	0.047	0.085	0.471	0.051	0.011	–	–	0.777
16	1,1,2–Trichloroethane	0.283	0.065	0.034	0.189	0.021	0.004	–	–	0.386
16	1,1–Dichloroethane	0.285	0.029	0.034	0.189	0.021	0.004	–	–	0.408
16	1,1–Dichloroethylene	0.439	0.029	0.052	0.284	0.033	0.006	–	–	0.480
16	1,2–Dichloroethane	0.408	0.443	0.055	0.693	0.027	0.114	–	–	2.319
16	1,2–Dichloropropane	0.231	0.371	0.027	0.563	0.017	0.012	–	–	1.528
16	Bromodichloromethane	0.262	0.016	0.031	0.169	0.019	0.004	–	–	0.277
16	Bromoform	0.521	0.034	0.061	0.335	0.037	0.008	–	–	0.553
16	Carbon tetrachloride	0.968	0.088	0.151	0.690	0.073	0.017	–	–	3.806
16	Chloroform	0.500	0.035	0.063	0.343	0.039	0.010	–	–	0.669
16	Chloromethane	12.935	0.669	1.344	5.945	0.783	0.042	–	–	9.859
16	Cis–1,3–Dichloropropylene	0.405	0.026	0.048	0.349	0.029	0.006	–	–	0.560
16	Dibromochloromethane	0.379	0.026	0.046	0.257	0.029	0.006	–	–	0.424
16	Methylene chloride	0.435	0.220	0.048	0.283	0.027	0.006	–	–	0.678
16	Tetrachloroethylene	0.695	0.094	0.077	0.451	0.053	0.039	–	–	4.128
16	Trichloroethylene	0.409	0.030	0.048	0.264	0.029	0.006	–	–	0.683
16	Vinyl chloride	2.474	0.058	0.203	0.985	0.068	0.018	–	–	1.494
17	Benzene	0.314	0.024	0.030	0.730	–	0.003	–	–	0.815
17	Ethylbenzene	0.299	0.021	0.057	2.331	–	0.005	–	–	2.447
17	Styrene	0.326	0.019	0.049	0.387	–	0.005	–	–	0.502
17	m–Xylene and p–Xylene	0.620	0.035	0.076	0.390	–	0.009	–	–	0.585
17	o–Xylene	0.321	0.019	0.037	0.210	–	0.005	–	–	0.313
19	2,6–Dinitrotoluene	0.464	0.039	0.232	0.731	–	–	–	–	1.128
19	2–Chloronaphthalene	1.392	0.087	0.167	0.912	–	–	–	–	1.307
19	Benzylbutylphthalate	0.093	0.007	0.012	0.057	–	–	–	–	0.093
19	Biphenyl	0.928	0.054	0.102	0.575	–	–	–	–	0.860
19	Bis(2–chloroethyl)ether	1.299	0.076	0.143	0.806	–	–	–	–	1.205
19	Bis(2–chloroisopropyl)ether	1.113	0.117	0.122	1.894	–	–	–	–	2.371
19	Bis(2–ethylhexyl) phthalate	0.742	0.064	0.063	0.203	–	–	–	–	0.390
19	Di–n–butyl phthalate	1.299	0.129	0.143	0.806	–	–	–	–	1.258
19	N–Nitrosodi–n–propylamine	0.835	0.049	0.092	0.518	–	–	–	–	0.781
19	Naphthalene	1.113	0.069	0.133	0.728	–	–	–	–	1.044

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – DOW CHEMICAL CANADA INC. – SARNIA

ATG	PARAMETER	IN 0100	CO 0600	CO 0700	CO 0900	OT 0300	OT 1000	WA 2200	WA 2300	TOTAL
20	2,3,4,5–Tetrachlorophenol	0.375	0.024	0.047	0.259	–	0.005	–	–	0.391
20	2,3,4–Trichlorophenol	0.395	0.025	0.055	0.301	–	0.003	–	–	0.432
20	Phenol	1.589	0.130	0.240	1.462	–	0.031	–	–	2.172
23	1,2,4,5–Tetrachlorobenzene	0.006	*	0.001	0.004	*	–	–	–	0.006
23	1,2,4–Trichlorobenzene	0.015	0.002	0.001	0.008	0.001	–	–	–	0.025
23	2,4,5–Trichlorotoluene	0.008	0.001	0.001	0.007	0.001	–	–	–	0.016
23	Hexachlorobenzene	0.003	*	*	0.002	*	–	–	–	0.004
23	Hexachlorobutadiene	0.007	0.001	0.001	0.004	*	–	–	–	0.015
23	Hexachlorocyclopentadiene	0.004	*	*	0.003	*	–	–	–	0.003
23	Hexachloroethane	0.004	*	*	0.003	*	–	–	–	0.010
23	Octachlorostyrene	0.005	*	0.001	0.005	0.001	–	–	–	0.008
24	Total T4CDF	*	*	*	*	–	–	–	–	*
24	Total P5CDD	*	*	*	*	–	–	–	–	*
24	Total P5CDF	*	*	*	*	–	–	–	–	*
24	Total H6CDD	*	*	*	*	–	–	–	–	*
24	Total H6CDF	*	*	*	*	–	–	–	–	*
24	Total H7CDD	*	*	*	*	–	–	–	–	*
24	Total H7CDF	*	*	*	*	–	–	–	–	*
24	Total O8CDD	*	*	*	*	–	–	–	–	*
24	Total O8CDF	*	*	*	*	–	–	–	–	*
25	Oil and grease	1402.763	65.155	118.816	631.542	108.017	13.878	4.452	2.777	1115.609

EXPLANATORY NOTES:
(i) "–" not required in the regulation or no conc/flow data available
(ii) "*" loading less than 1 gram/day

SAMPLING POINTS:
IN 0100 – Intake Water to Site
PR 1200 – Throx Stripper Effluent flows into CO 0500
PR 1600 – Tank Car Wash (Building 88) flows into CO 0900
PR 1700 – Block 90 Feed (Building 35 & 39) flow into CO 0900
PR 1900 – Biox Plant Effluent flows onto CO 0900
PR 2000 – Boiler Feedwater Effluent flows into CO 0900
PR 2100 – Scott Road Treated Runoff to River
CO 0200 – 42 inch Outfall to River
CO 0500 – 54 inch Sluice Outfall to River
CO 0600 – 2nd Street Outfall to River
CO 0700 – 3rd Street Outfall to River
CO 0900 – 4th Street Outfall to River
OT 0300 – 48 inch Outfall to River
OT 1000 – 5th Street Outfall to River
WA 2200 – Lasalle Road Runoff to River
WA 2300 – Lasalle Road Runoff to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – DU PONT CANADA INC. – CORUNNA

ATG	PARAMETER	RMDL	UNIT	IN 0100	CO 0200	CO 0400
1	COD	10	mg/L	16	23	48
3	Hydrogen ion (pH)			8.0	7.9	8.0
4	Ammonia plus Ammonium	0.25	mg/L	0.12	0.08	0.03
4	Nitrate+Nitrite	0.25	mg/L	0.33	0.36	0.39
4	Total Kjeldahl Nitrogen	0.5	mg/L	0.6	0.5	0.4
5	DOC	0.5	mg/L	2.5	3.0	2.8
5	TOC	5	mg/L	2	5	4
6	Total phosphorus	0.10	mg/L	0.08	0.08	0.10
7	Specific conductance	500	uS/cm	269	282	309
8	Total suspended solids	5	mg/L	6	7	12
8	Volatile suspended solids	10	mg/L	4	7	10
9	Aluminum	30.0	ug/L	142.6	220.8	223.2
9	Copper	10.0	ug/L	13.6	23.2	25.7
9	Zinc	10.0	ug/L	6.6	11.4	19.2
14	Phenolics (4AAP)	2.0	ug/L	1.5	2.7	2.8
15	Sulphide	20.0	ug/L	25.0	25.0	40.0
16	1,1–Dichloroethane	0.8	ug/L	1.2	0.5	0.5
16	1,2–Dichloroethane	0.8	ug/L	0.7	0.4	0.4
16	Chloroform	0.7	ug/L	0.4	0.6	1.4
16	Chloromethane	3.7	ug/L	4.3	2.3	2.3
16	Methylene chloride	1.3	ug/L	0.3	2.3	4.3
17	Toluene	0.5	ug/L	0.4	3.1	5.2
23	Hexachlorobenzene	10.0	ng/L	4.0	6.5	7.5
23	Hexachloroethane	10.0	ng/L	1.7	1.7	11.9
23	Pentachlorobenzene	10.0	ng/L	3.6	5.1	10.1
24	Total H7CDD	30.0	pg/L	17.6	27.5	52.0
24	Total O8CDD	30.0	pg/L	20.9	25.5	59.0
25	Oil and grease	1.0	mg/L	1.3	1.3	1.5
98	Ftflow		m3/day	49316	54696	15088

EXPLANATORY NOTES:

(i) The average concentration of a parameter that did not qualify as "found" at a given sampling point is shown in smaller size.

(ii) Average concentration values for parameters in ATGs 1, 3 to 8 and 25 are reported even if the parameter did not qualify as "found" at the site.

SAMPLING POINTS
IN 0100 – Intake Water to Site
CO 0200 – Final Effluent to River
CO 0400 – Pellet Pond Effluent flows into CO 0200

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – DU PONT CANADA INC. – CORUNNA

ATG	PARAMETER	IN 0100	CO 0200	CO 0400	TOTAL
1	COD	968.000	1389.400	541.410	1389.400
4	Ammonia plus Ammonium	6.315	4.356	0.293	4.356
4	Nitrate+Nitrite	19.625	21.696	4.574	21.696
4	Total Kjeldahl Nitrogen	27.702	25.258	4.899	25.258
5	DOC	128.617	153.469	37.651	153.469
5	TOC	145.571	189.898	51.382	189.898
6	Total phosphorus	4.579	4.212	1.352	4.212
8	Total suspended solids	342.071	351.317	173.148	351.317
8	Volatile suspended solids	210.700	419.000	110.050	419.000
9	Aluminum	8.178	12.582	3.030	12.582
9	Copper	0.842	1.439	0.438	1.439
9	Zinc	0.377	0.637	0.234	0.637
14	Phenolics (4AAP)	0.081	0.136	0.040	0.136
15	Sulphide	1.517	1.517	0.470	1.517
16	1,1–Dichloroethane	0.073	0.030	0.006	0.030
16	1,2–Dichloroethane	0.039	0.024	0.005	0.024
16	Chloroform	0.024	0.033	0.015	0.033
16	Chloromethane	0.261	0.138	0.027	0.138
16	Methylene chloride	0.018	0.131	0.049	0.131
17	Toluene	0.023	0.171	0.091	0.171
23	Hexachlorobenzene	*	0.001	*	0.001
23	Hexachloroethane	*	*	*	*
23	Pentachlorobenzene	*	*	*	*
24	Total H7CDD	*	*	*	*
24	Total O8CDD	*	*	*	*
25	Oil and grease	68.542	71.391	22.033	71.391

EXPLANATORY NOTES:
(i) "*" loading less than 1 gram/day

SAMPLING POINTS:
IN 0100 – Intake Water to Site
CO 0200 – Final Effluent to River
CO 0400 – Pellet Pond Effluent flows into CO 0200

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – DU PONT CANADA INC. – KINGSTON

ATG	PARAMETER	RMDL	UNIT	IN 1300	PR 0600	PR 1000	CO 0700	CO 1100
1	COD	10	mg/L	–	17	1180	26	31
3	Hydrogen ion (pH)			8.0	8.2	7.6	8.2	8.2
4	Ammonia plus Ammonium	0.25	mg/L	–	0.21	0.36	0.15	0.77
4	Nitrate+Nitrite	0.25	mg/L	–	0.25	0.09	0.26	0.29
4	Total Kjeldahl Nitrogen	0.5	mg/L	–	1.1	5.5	1.5	1.1
5	DOC	0.5	mg/L	2.0	5.0	159.3	4.2	6.7
5	TOC	5	mg/L	2	· 7	204	6	4
6	Total phosphorus	0.10	mg/L	0.10	0.22	2.90	0.12	0.27
7	Specific conductance	500	uS/cm	315	321	329	328	353
8	Total suspended solids	5	mg/L	7	11	68	5	8
8	Volatile suspended solids	10	mg/L	–	5	120	5	4
9	Aluminum	30.0	ug/L	59.2	44.8	39.4	39.0	42.8
9	Boron	50.0	ug/L	60.0	53.3	93.3	56.7	63.3
9	Copper	10.0	ug/L	63.3	22.5	19.2	10.8	16.7
9	Zinc	10.0	ug/L	193.3	12.5	35.2	10.0	27.5
12	Mercury	0.10	ug/L	–	0.17	0.11	0.10	0.10
14	Phenolics (4AAP)	2.0	ug/L	1.2	1.1	233.9	1.3	1.7
15	Sulphide	20.0	ug/L	10.0	10.0	57.3	10.0	10.0
16	1,1,2,2–Tetrachloroethane	4.3	ug/L	1.0	1.0	6.1	1.0	1.0
16	1,1,2–Trichloroethane	0.6	ug/L	0.2	0.2	1.7	0.2	0.2
16	1,1–Dichloroethane	0.8	ug/L	0.2	0.2	1.2	0.2	0.2
16	1,2–Dichloroethane	0.8	ug/L	0.2	0.2	1.2	0.2	0.2
16	1,2–Dichloropropane	0.9	ug/L	0.2	0.2	1.2	0.2	0.2
16	Bromodichloromethane	0.8	ug/L	4.7	2.1	1.8	2.5	2.8
16	Bromoform	3.7	ug/L	2.0	2.0	12.2	2.0	2.0
16	Bromomethane	3.7	ug/L	2.0	2.0	12.2	2.0	2.0
16	Chlorobenzene	0.7	ug/L	0.2	0.2	1.2	0.2	0.2
16	Chloroform	0.7	ug/L	7.6	4.0	4.3	4.7	5.2
16	Chloromethane	3.7	ug/L	2.0	2.0	12.2	2.0	2.0
16	Cis–1,3–Dichloropropylene	1.4	ug/L	0.5	0.5	3.0	0.5	0.5
16	Dibromochloromethane	1.1	ug/L	2.4	1.1	6.2	1.3	1.4
16	Ethylene dibromide	1.0	ug/L	1.0	1.0	6.1	1.0	1.0
16	Methylene chloride	1.3	ug/L	0.6	0.5	4.1	0.6	0.7
16	Tetrachloroethylene	1.1	ug/L	0.5	0.5	3.0	0.5	0.5
16	Trans–1,3–Dichloropropylene	1.4	ug/L	0.5	0.5	3.0	0.5	0.5
16	Trichlorofluoromethane	1.0	ug/L	1.0	1.0	6.1	1.5	1.1
16	Vinyl chloride	4.0	ug/L	2.0	2.0	12.2	2.0	2.0

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – DU PONT CANADA INC. – KINGSTON

ATG	PARAMETER	RMDL	UNIT	IN 1300	PR 0600	PR 1000	CO 0700	CO 1100
17	Benzene	0.5	ug/L	0.1	0.3	2.2	0.4	0.7
17	Ethylbenzene	0.6	ug/L	0.2	0.2	1.2	0.2	0.2
17	Styrene	0.5	ug/L	0.2	0.2	1.2	0.3	0.5
17	Toluene	0.5	ug/L	0.5	0.2	1.3	0.2	0.3
17	o–Xylene	0.5	ug/L	0.2	0.2	1.2	0.2	0.2
18	Acrolein	4.0	ug/L	4.0	4.0	24.3	4.0	4.0
18	Acrylonitrile	4.2	ug/L	2.0	2.0	12.2	2.0	2.0
19	Biphenyl	0.6	ug/L	–	4.6	2.3	2.6	2.2
19	Bis(2–ethylhexyl) phthalate	2.2	ug/L	–	2.0	13.7	2.0	2.4
19	Diphenyl ether	0.4	ug/L	–	14.6	4.3	7.2	7.2
24	Total T4CDD	20.0	pg/L	–	20.0	154.0	20.0	20.0
24	Total H7CDD	30.0	pg/L	–	21.0	30.3	25.8	21.0
24	Total H7CDF	30.0	pg/L	–	23.0	28.0	23.0	23.0
24	Total O8CDD	30.0	pg/L	–	30.0	69.3	30.0	30.0
25	Oil and grease	1.0	mg/L	1.4	1.4	250.3	1.7	1.7
98	Ftflow		m3/day	6855	892	114	29072	24770

EXPLANATORY NOTES:
(i) "–" no concentration data available or not required by regulation
(ii) The average concentration of a parameter that did not qualify as "found" at a given sampling point is shown in smaller size.
(iii) Average concentration values for parameters in ATGs 1, 3–8 and 25 are reported even if the parameter did not qualify as "found" at the site.

SAMPLING POINTS
IN 1300 – Intake Water to Site
PR 0600 – Flake Effluent flows into CO 1100
PR 1000 – Staple Sewer flows into CO 1100
CO 0700 – Service Sewer to Lake
CO 1100 – Catch Tank Effluent to Lake

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – DU PONT CANADA INC. – KINGSTON

ATG	PARAMETER	IN 1300	PR 0600	PR 1000	CO 0700	CO 1100	TOTAL
1	COD	–	16.427	121.988	805.183	847.071	1652.254
4	Ammonia plus Ammonium	–	0.232	0.037	3.908	24.779	28.687
4	Nitrate+Nitrite	–	0.243	0.010	7.054	6.837	13.891
4	Total Kjeldahl Nitrogen	–	1.006	0.637	46.894	28.647	75.541
5	DOC	99.788	4.445	19.828	117.409	159.451	276.860
5	TOC	91.267	6.249	25.228	226.423	108.298	334.721
6	Total phosphorus	5.420	0.140	0.312	3.681	7.616	11.297
8	Total suspended solids	491.162	9.572	7.911	162.726	202.866	365.592
8	Volatile suspended solids	–	4.916	12.129	131.655	99.357	231.012
9	Aluminum	3.596	0.039	0.004	1.251	1.091	2.342
9	Boron	2.852	0.048	0.011	1.592	1.335	2.927
9	Copper	4.612	0.018	0.002	0.322	0.368	0.690
9	Zinc	5.184	0.010	0.004	0.290	0.952	1.242
12	Mercury	–	*	*	0.003	0.003	0.006
14	Phenolics (4AAP)	0.064	0.001	0.020	0.037	0.048	0.085
15	Sulphide	0.542	0.009	0.005	0.290	0.252	0.542
16	1,1,2,2–Tetrachloroethane	0.054	0.001	0.001	0.029	0.025	0.054
16	1,1,2–Trichloroethane	0.014	*	*	0.007	0.005	0.012
16	1,1–Dichloroethane	0.011	*	*	0.006	0.005	0.011
16	1,2–Dichloroethane	0.011	*	*	0.006	0.005	0.011
16	1,2–Dichloropropane	0.011	*	*	0.006	0.005	0.011
16	Bromodichloromethane	0.274	0.002	*	0.074	0.064	0.138
16	Bromoform	0.108	0.002	0.001	0.058	0.050	0.108
16	Bromomethane	0.108	0.002	0.001	0.058	0.050	0.108
16	Chlorobenzene	0.011	*	*	0.006	0.005	0.011
16	Chloroform	0.422	0.003	*	0.119	0.119	0.238
16	Chloromethane	0.108	0.002	0.001	0.058	0.050	0.108
16	Cis–1,3–Dichloropropylene	0.027	*	*	0.015	0.013	0.028
16	Dibromochloromethane	0.160	0.001	0.001	0.044	0.036	0.080
16	Ethylene dibromide	0.054	0.001	0.001	0.029	0.025	0.054
16	Methylene chloride	0.034	*	*	0.016	0.018	0.034
16	Tetrachloroethylene	0.027	*	*	0.015	0.013	0.028
16	Trans–1,3–Dichloropropylene	0.027	*	*	0.015	0.013	0.028
16	Trichlorofluoromethane	0.054	0.001	0.001	0.029	0.026	0.055
16	Vinyl chloride	0.108	0.002	0.001	0.058	0.050	0.108

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – DU PONT CANADA INC. – KINGSTON

ATG	PARAMETER	IN 1300	PR 0600	PR 1000	CO 0700	CO 1100	TOTAL
17	Benzene	0.005	*	*	0.011	0.006	0.017
17	Ethylbenzene	0.011	*	*	0.006	0.005	0.011
17	Styrene	0.011	*	*	0.010	0.012	0.022
17	Toluene	0.011	*	*	0.006	0.008	0.014
17	o–Xylene	0.011	*	*	0.006	0.005	0.011
18	Acrolein	0.217	0.004	0.003	0.116	0.101	0.217
18	Acrylonitrile	0.108	0.002	0.001	0.058	0.050	0.108
19	Biphenyl	–	0.005	*	0.080	0.066	0.146
19	Bis(2–ethylhexyl) phthalate	–	0.002	0.001	0.052	0.064	0.116
19	Diphenyl ether	–	0.015	*	0.232	0.212	0.444
24	Total T4CDD	–	*	*	*	*	*
24	Total H7CDD	–	*	*	*	*	*
24	Total H7CDF	–	*	*	*	*	*
24	Total O8CDD	–	*	*	*	*	*
25	Oil and grease	65247	1.294	29.987	49.384	41.681	91.065

EXPLANATORY NOTES:
(i) "–" not required by the regulation or no conc/flow data available
(ii) "*" loading less than 1 gram/day

SAMPLING POINTS:
IN 1300 – Intake Water to Site
PR 0600 – Flake Effluent flows into CO 1100
PR 1000 – Staple Sewer flows into CO 1100
CO 0700 – Service Sewer to Lake
CO 1100 – Catch Tank Effluent to Lake

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – DU PONT CANADA INC. – MAITLAND

ATG	PARAMETER	RMDL	UNIT	IN 1000	PR 0300	CO 0400	CO 0500	CO 0700	CO 1100
1	COD	10	mg/L	11	204	11	15	213	61
2	Cyanide Total	0.005	mg/L	0.005	0.207	0.005	0.018	0.016	0.040
3	Hydrogen ion (pH)			8.1	8.2	8.6	7.5	7.9	7.7
4	Ammonia plus Ammonium	0.25	mg/L	0.10	23.79	0.14	0.19	0.19	1.01
4	Nitrate+Nitrite	0.25	mg/L	0.30	14.40	0.35	4.28	1.06	2.70
4	Total Kjeldahl Nitrogen	0.5	mg/L	0.5	48.3	0.3	1.0	1.0	6.2
5	DOC	0.5	mg/L	2.3	50.7	2.6	4.6	11.3	6.3
5	TOC	5	mg/L	4	66	3	4	4	9
6	Total phosphorus	0.10	mg/L	0.10	4.23	0.10	0.10	0.10	0.62
7	Specific conductance	500	uS/cm	507	1776	1035	486	463	388
8	Total suspended solids	5	mg/L	13	293	14	6	7	25
8	Volatile suspended solids	10	mg/L	5	300	4	5	5	17
9	Aluminum	30.0	ug/L	238.3	193.3	100.0	55.0	62.5	158.3
9	Boron	50.0	ug/L	55.8	59.2	100.0	57.5	50.0	55.8
9	Chromium	20.0	ug/L	21.2	41.7	20.0	20.8	20.0	21.7
9	Cobalt	20.0	ug/L	20.0	184.7	20.0	20.0	20.0	22.9
9	Copper	10.0	ug/L	10.0	163.4	10.0	20.8	35.0	93.3
9	Nickel	20.0	ug/L	10.0	18.3	12.5	10.0	10.0	10.0
9	Vanadium	30.0	ug/L	20.0	104.5	20.0	20.0	22.5	20.0
9	Zinc	10.0	ug/L	11.7	61.7	10.0	10.0	10.0	63.3
10	Antimony	5.0	ug/L	2.0	2.1	132.8	2.0	3.3	13.5
10	Arsenic	5.0	ug/L	2.0	2.0	18.9	2.0	2.0	2.1
14	Phenolics (4AAP)	2.0	ug/L	1.3	18.7	4.6	3.1	4.4	6.1
15	Sulphide	20.0	ug/L	10.0	20.8	16.5	10.0	10.0	10.0

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – DU PONT CANADA INC. – MAITLAND

ATG	PARAMETER	RMDL	UNIT	IN 1000	PR 0300	CO 0400	CO 0500	CO 0700	CO 1100
16	1,1,2,2–Tetrachloroethane	4.3	ug/L	1.0	4.3	1.0	1.0	1.0	1.3
16	1,1,2–Trichloroethane	0.6	ug/L	0.2	0.9	0.2	0.2	0.2	0.3
16	1,1–Dichloroethane	0.8	ug/L	0.2	0.9	0.2	0.2	0.2	0.3
16	1,1–Dichloroethylene	2.8	ug/L	0.5	2.1	0.5	0.5	0.5	0.7
16	1,2–Dichlorobenzene	1.4	ug/L	0.2	0.9	0.2	0.2	0.2	0.3
16	1,2–Dichloroethane	0.8	ug/L	0.2	0.9	0.2	0.2	0.2	0.3
16	1,2–Dichloropropane	0.9	ug/L	0.2	0.9	0.2	0.2	0.2	0.3
16	1,3–Dichlorobenzene	1.1	ug/L	0.2	0.9	0.2	0.2	0.2	0.3
16	1,4–Dichlorobenzene	1.7	ug/L	0.2	0.9	0.2	0.2	0.2	0.3
16	Bromodichloromethane	0.8	ug/L	0.2	0.9	30.5	6.0	6.5	0.8
16	Bromoform	3.7	ug/L	2.0	8.5	2.0	2.0	2.0	2.7
16	Bromomethane	3.7	ug/L	2.0	8.5	2.0	2.0	2.0	2.7
16	Carbon tetrachloride	1.3	ug/L	0.2	0.9	143.7	6.1	9.6	1.0
16	Chlorobenzene	0.7	ug/L	0.2	0.9	0.2	0.2	0.2	0.3
16	Chloroform	0.7	ug/L	2.0	1.4	71.3	7.5	9.3	2.1
16	Chloromethane	3.7	ug/L	2.0	8.5	2.0	2.0	2.0	2.7
16	Cis–1,3–Dichloropropylene	1.4	ug/L	0.5	2.1	0.5	0.5	0.5	0.7
16	Dibromochloromethane	1.1	ug/L	1.0	4.3	1.0	1.0	1.0	1.3
16	Ethylene dibromide	1.0	ug/L	1.0	4.3	1.0	1.0	1.0	1.3
16	Methylene chloride	1.3	ug/L	0.5	2.2	1.0	1.0	1.0	0.8
16	Tetrachloroethylene	1.1	ug/L	0.2	2.1	277.7	15.0	128.8	18.4
16	Trans–1,2–Dichloroethylene	1.4	ug/L	0.2	0.9	0.2	0.2	0.2	0.3
16	Trans–1,3–Dichloropropylene	1.4	ug/L	0.5	2.1	0.5	0.5	0.5	0.7
16	Trichloroethylene	1.9	ug/L	0.2	0.9	0.2	0.2	0.2	2.0
16	Trichlorofluoromethane	1.0	ug/L	1.0	4.3	980.8	33.2	70.4	16.3
16	Vinyl chloride	4.0	ug/L	2.0	8.5	2.0	2.0	2.0	2.7

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – DU PONT CANADA INC. – MAITLAND

ATG	PARAMETER	RMDL	UNIT	IN 1000	PR 0300	CO 0400	CO 0500	CO 0700	CO 1100
17	Benzene	0.5	ug/L	0.1	0.7	9.0	3.6	51.2	0.7
17	Ethylbenzene	0.6	ug/L	0.2	0.9	16.0	5.4	5.4	0.3
17	Styrene	0.5	ug/L	0.2	0.9	16.0	5.4	5.4	0.3
17	Toluene	0.5	ug/L	0.2	0.9	16.0	5.4	5.4	0.5
17	m–Xylene and p–Xylene	1.1	ug/L	0.2	1.4	16.0	5.4	5.4	0.4
17	o–Xylene	0.5	ug/L	0.2	0.9	16.0	5.4	5.4	0.3
18	Acrolein	4.0	ug/L	4.0	111.0	320.0	107.0	107.0	8.0
18	Acrylonitrile	4.2	ug/L	2.0	55.5	160.0	53.5	53.5	4.0
19	Diphenyl ether	0.4	ug/L	0.4	89.8	0.4	2.1	5.3	0.5
23	1,2,4–Trichlorobenzene	10.0	ng/L	5.5	6.8	46.8	5.3	6.3	6.3
23	Hexachlorobenzene	10.0	ng/L	5.5	6.7	194.8	5.0	5.8	6.1
23	Hexachlorobutadiene	10.0	ng/L	5.5	6.8	19.5	5.0	6.3	5.6
23	Hexachloroethane	10.0	ng/L	5.5	6.7	98.5	5.0	10.0	12.6
24	Total T4CDD	20.0	pg/L	20.0	58.0	37.5	20.0	20.0	665.0
24	Total O8CDD	30.0	pg/L	32.5	85.0	48.3	50.3	210.0	97.5
24	Total O8CDF	30.0	pg/L	30.0	30.0	125.5	30.0	49.0	42.5
25	Oil and grease	1.0	mg/L	1.0	6.4	1.1	1.3	1.1	2.5
98	Ftflow		m3/day	–	4895	5512	14233	53777	191263

EXPLANATORY NOTES:

(i) "–" no concentration data available or not required by regulation

(ii) Average loading values for parameters in ATGs 1, 3–8 and 25 are reported even if the parameter did not qualify as "found" at the site.

(iii) Shading of non–intake data indicates uncertain presence or absence because the lowest analytical response (<WE) that was reported for a significant proportion of the data was greater than 10 times the RMDL.

(iv) The average concentration of a parameter that did not qualify as "found" at a given sampling point is shown in smaller size.

SAMPLING POINTS

IN 1000 – Intake Water to Site
PR 0300 – WTP Effluent flows into CO 1100
CO 0400 – CFH Effluent flows into CO 0700
CO 0500 – Spandex, Polymers, Powerhouse Effluent flows into CO 1100
CO 0700 – Cribbed Ditch flows into CO 1100
CO 1100 – Site Effluent to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – DU PONT CANADA INC. – MAITLAND

ATG	PARAMETER	IN 1000	PR 0300	CO 0400	CO 0500	CO 0700	CO 1100	TOTAL
1	COD	211.000	1099.875	62.400	210.250	13266.850	11417.000	11417.000
2	Cyanide Total	0.972	1.051	0.029	0.263	0.824	7.669	7.669
4	Ammonia plus Ammonium	19.880	112.455	0.809	2.551	10.043	193.868	193.868
4	Nitrate+Nitrite	57.445	68.113	2.128	58.984	55.151	511.600	511.600
4	Total Kjeldahl Nitrogen	64.578	227.992	1.697	14.298	53.262	1335.407	1335.407
5	DOC	453.978	295.951	14.161	60.208	589.187	1180.381	1180.381
5	TOC	685.110	378.370	20.581	46.905	260.750	1848.404	1848.404
6	Total phosphorus	19.493	19.319	0.546	1.442	5.572	128.217	128.217
8	Total suspended solids	284.950	1459.420	79.746	82.362	363.772	5356.933	5356.933
8	Volatile suspended solids	997.500	1536.931	25.721	69.750	283.250	3424.000	3424.000
9	Aluminum	53.257	0.850	0.599	0.685	3.668	34.431	34.431
9	Boron	10.905	0.329	0.591	0.819	2.832	10.918	10.918
9	Chromium	3.782	0.193	0.116	0.292	1.133	4.363	4.363
9	Cobalt	3.940	0.858	0.116	0.283	1.133	4.354	4.354
9	Copper	2.146	0.829	0.058	0.294	1.937	18.728	18.728
9	Nickel	1.970	0.092	0.073	0.142	0.566	1.970	1.970
9	Vanadium	3.940	0.493	0.116	0.283	1.290	3.940	3.940
9	Zinc	2.453	0.303	0.058	0.142	0.566	11.803	11.803
10	Antimony	0.378	0.011	0.688	0.028	0.192	2.689	2.689
10	Arsenic	0.330	0.010	0.100	0.028	0.113	0.409	0.409
14	Phenolics (4AAP)	0.267	0.094	0.028	0.042	0.256	1.142	1.142
15	Sulphide	1.995	0.109	0.097	0.139	0.566	1.995	1.995

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – DU PONT CANADA INC. – MAITLAND

ATG	PARAMETER	IN 1000	PR 0300	CO 0400	CO 0500	CO 0700	CO 1100	TOTAL
16	1,1,2,2–Tetrachloroethane	0.197	0.022	0.817	0.316	1.667	0.259	0.259
16	1,1,2–Trichloroethane	0.044	0.004	0.150	0.063	0.333	0.056	0.056
16	1,1–Dichloroethane	0.039	0.004	0.120	0.063	0.333	0.052	0.052
16	1,1–Dichloroethylene	0.098	0.011	0.300	0.158	0.833	0.130	0.130
16	1,2–Dichlorobenzene	0.039	0.004	0.120	0.063	0.333	0.052	0.052
16	1,2–Dichloroethane	0.039	0.004	0.120	0.063	0.333	0.052	0.052
16	1,2–Dichloropropane	0.039	0.004	0.120	0.063	0.333	0.052	0.052
16	1,3–Dichlorobenzene	0.039	0.004	0.120	0.063	0.333	0.052	0.052
16	1,4–Dichlorobenzene	0.039	0.004	0.120	0.063	0.333	0.052	0.052
16	Bromodichloromethane	0.174	0.004	0.169	0.072	0.399	0.153	0.153
16	Bromoform	0.394	0.043	1.198	0.632	3.334	0.518	0.518
16	Bromomethane	0.394	0.043	1.198	0.632	3.334	0.518	0.518
16	Carbon tetrachloride	0.069	0.004	0.799	0.075	0.570	0.190	0.190
16	Chlorobenzene	0.039	0.004	0.120	0.063	0.333	0.052	0.052
16	Chloroform	0.491	0.006	0.421	0.094	0.561	0.407	0.407
16	Chloromethane	0.394	0.043	1.198	0.632	3.334	0.518	0.518
16	Cis–1,3–Dichloropropylene	0.098	0.011	0.300	0.158	0.833	0.130	0.130
16	Dibromochloromethane	0.197	0.022	0.817	0.316	1.675	0.259	0.259
16	Ethylene dibromide	0.197	0.022	0.599	0.316	1.667	0.259	0.259
16	Methylene chloride	0.098	0.011	0.376	0.018	0.061	0.153	0.153
16	Tetrachloroethylene	0.098	0.011	1.610	0.183	8.064	3.641	3.641
16	Trans–1,2–Dichloroethylene	0.069	0.004	0.120	0.063	0.333	0.052	0.052
16	Trans–1,3–Dichloropropylene	0.098	0.011	0.300	0.158	0.833	0.130	0.130
16	Trichloroethylene	0.069	0.004	0.120	0.063	0.333	0.420	0.420
16	Trichlorofluoromethane	0.197	0.022	5.220	0.416	4.221	2.910	2.910
16	Vinyl chloride	0.394	0.043	1.198	0.632	3.334	0.518	0.518

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – DU PONT CANADA INC. – MAITLAND

ATG	PARAMETER	IN 1000	PR 0300	CO 0400	CO 0500	CO 0700	CO 1100	TOTAL
17	Benzene	0.020	0.004	0.052	0.045	3.218	0.128	0.128
17	Ethylbenzene	0.039	0.004	0.091	0.063	0.353	0.052	0.052
17	Styrene	0.039	0.004	0.091	0.063	0.353	0.052	0.052
17	Toluene	0.039	0.004	0.091	0.063	0.535	0.086	0.086
17	m–Xylene and p–Xylene	0.041	0.007	0.091	0.064	0.341	0.069	0.069
17	o–Xylene	0.039	0.004	0.091	0.063	0.353	0.052	0.052
18	Acrolein	0.749	0.637	1.832	1.264	6.657	1.542	1.542
18	Acrylonitrile	0.376	0.319	0.916	0.632	3.328	0.771	0.771
19	Diphenyl ether	0.080	0.520	0.003	0.031	0.270	0.089	0.089
23	1,2,4–Trichlorobenzene	0.001	*	*	*	*	0.001	0.001
23	Hexachlorobenzene	0.001	*	0.001	*	*	0.001	0.001
23	Hexachlorobutadiene	0.001	*	*	*	*	0.001	0.001
23	Hexachloroethane	0.001	*	0.001	*	0.001	0.002	0.002
24	Total T4CDD	*	*	*	*	*	*	*
24	Total O8CDD	*	*	*	*	*	*	*
24	Total O8CDF	*	*	*	*	*	*	*
25	Oil and grease	194.265	31.042	6.258	19.127	57.570	530.980	530.980

EXPLANATORY NOTES:
(i) "–" not required by the regulation or no conc/flow data available
(ii) "*" loading less than 1 gram/day
(iii) Shading of non–intake data indicates uncertain presence or absence because the lowest analytical response (<WE) that was reported for a significant proportion of the data was greater than 10 times the RMDL.

SAMPLING POINTS:
IN 1000 – Intake Water to Site
PR 0300 – WTP Effluent flows into CO 1100
CO 0400 – CFH Effluent flows into CO 0700
CO 0500–Spandex,Polymers,Powerhouse Effluent flows into CO 1100
CO 0700 – Cribbed Ditch flows into CO 1100
CO 1100 – Site Effluent to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM FEB 1/90 TO JAN 31/91

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – DU PONT CANADA INC. – WHITBY

ATG	PARAMETER	RMDL	UNIT	IN 0900	CO 0200	OT 0300	OT 0400	OT 0500	OT 0600
1	COD	10	mg/L	–	13	–	–	–	–
3	Hydrogen ion (pH)			8.1	7.9	7.8	7.9	7.9	8.0
4	Ammonia plus Ammonium	0.25	mg/L	–	0.11	–	–	–	–
4	Nitrate+Nitrite	0.25	mg/L	–	0.40	–	–	–	–
4	Total Kjeldahl Nitrogen	0.5	mg/L	–	0.3	–	–	–	–
5	DOC	0.5	mg/L	1.7	3.5	1.7	1.7	1.7	2.0
5	TOC	5	mg/L	2	4	2	2	2	2
6	Total phosphorus	0.10	mg/L	0.10	0.10	0.10	0.10	0.10	0.10
7	Specific conductance	500	uS/cm	311	323	340	352	387	348
8	Total suspended solids	5	mg/L	4	3	2	2	4	8
8	Volatile suspended solids	10	mg/L	5	4	–	–	–	–
9	Aluminum	30.0	ug/L	65.8	100.0	68.3	83.3	85.0	131.7
9	Copper	10.0	ug/L	10.0	10.0	17.5	10.0	10.8	11.7
9	Zinc	10.0	ug/L	13.2	10.0	10.8	10.0	10.0	10.0
14	Phenolics (4AAP)	2.0	ug/L	1.0	4.6	1.2	1.1	1.1	1.2
16	Bromodichloromethane	0.8	ug/L	–	2.5	–	–	–	–
16	Chloroform	0.7	ug/L	–	2.3	–	–	–	–
16	Dibromochloromethane	1.1	ug/L	–	1.7	–	–	–	–
19	Bis(2–ethylhexyl) phthalate	2.2	ug/L	–	5.5	–	–	–	–
19	Di–n–octyl phthalate	2.0	ug/L	–	2.3	–	–	–	–
19	Diphenyl ether	0.4	ug/L	–	0.5	–	–	–	–
19	Fluoranthene	0.4	ug/L	–	2.2	–	–	–	–
25	Oil and grease	1.0	mg/L	1.1	1.3	2.2	1.1	1.1	1.1
98	Ftflow		m3/day	–	654	54	295	426	1373

EXPLANATORY NOTES:
(i) "–" no concentration data available or not required by regulation
(ii) The average concentration of a parameter that did not qualify as "found" at a given sampling point is shown in smaller size.
(iii) Average concentration values for parameters in ATGs 1, 3–8 and 25 are reported even if the parameter did not qualify as "found" at the site.

SAMPLING POINTS
IN 0900 – Intake Water to Site
CO 0200 – Nylon Line Combined Effluent to River
OT 0300 – Nylon Line Cooling Water to River
OT 0400 – Polyethylene Extrusion Water South to River
OT 0500 – Reclaim Unit #2 Water to River
OT 0600 – Polyethylene Extrusion Water North to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM FEB 1/90 TO JAN 31/91

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – DU PONT CANADA INC. – WHITBY

ATG	PARAMETER	IN 0900	CO 0200	OT 0300	OT 0400	OT 0500	OT 0600	TOTAL
1	COD	–	8.856	–	–	–	–	8.856
4	Ammonia plus Ammonium	–	0.059	–	–	–	–	0.059
4	Nitrate+Nitrite	–	0.228	–	–	–	–	0.228
4	Total Kjeldahl Nitrogen	–	0.124	–	–	–	–	0.124
5	DOC	4.861	2.275	0.096	0.501	0.713	2.693	6.278
5	TOC	5.249	2.642	0.122	0.619	0.806	2.785	6.974
6	Total phosphorus	0.280	0.071	0.005	0.029	0.043	0.137	0.285
8	Total suspended solids	10.190	1.905	0.152	0.845	1.423	11.623	15.948
8	Volatile suspended solids	4.009	1.653	–	–	–	–	1.653
9	Aluminum	0.184	0.068	0.004	0.025	0.035	0.180	0.312
9	Copper	0.028	0.007	0.001	0.003	0.005	0.017	0.033
9	Zinc	0.037	0.007	0.001	0.003	0.004	0.014	0.029
14	Phenolics (4AAP)	0.003	0.003	*	*	*	0.001	0.004
16	Bromodichloromethane	–	0.001	–	–	–	–	0.001
16	Chloroform	–	0.001	–	–	–	–	0.001
16	Dibromochloromethane	–	0.001	–	–	–	–	0.001
19	Bis(2–ethylhexyl) phthalate	–	0.005	–	–	–	–	0.005
19	Di–n–octyl phthalate	–	0.001	–	–	–	–	0.001
19	Diphenyl ether	–	*	–	–	–	–	*
19	Fluoranthene	–	0.002	–	–	–	–	0.002
25	Oil and grease	3.057	0.890	0.109	0.325	0.468	1.487	3.279

EXPLANATORY NOTES:
(i) "–" not required by regulation or no conc/flow data available
(ii) "*" loading less than 1 gram/day

SAMPLING POINTS
IN 0900 – Intake Water to Site
CO 0200 – Nylon Line Combined Effluent to River
OT 0300 – Nylon Line Cooling Water to River
OT 0400 – Polyethylene Extrusion Water South to River
OT 0500 – Reclaim Unit #2 Water to River
OT 0600 – Polyethylene Extrusion Water North to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – ESSO CHEMICAL CANADA – SARNIA

ATG	PARAMETER	RMDL	UNIT	IN 0100	PR 0200	CO 0300
1	COD	10	mg/L	5	31	30
2	Cyanide Total	0.005	mg/L	0.005	0.014	0.011
3	Hydrogen ion (pH)			8.1	7.8	8.2
4	Ammonia plus Ammonium	0.25	mg/L	0.10	0.10	0.10
4	Nitrate+Nitrite	0.25	mg/L	0.30	0.35	0.22
4	Total Kjeldahl Nitrogen	0.5	mg/L	0.2	0.3	0.2
5	DOC	0.5	mg/L	2.4	4.4	6.7
5	TOC	5	mg/L	3	5	7
6	Total phosphorus	0.10	mg/L	0.02	0.03	0.03
7	Specific conductance	500	uS/cm	174	276	219
8	Total suspended solids	5	mg/L	8	6	6
8	Volatile suspended solids	10	mg/L	4	3	6
9	Aluminum	30.0	ug/L	127.5	74.2	56.7
9	Copper	10.0	ug/L	14.8	19.7	23.3
9	Zinc	10.0	ug/L	7.3	19.3	23.2
14	Phenolics (4AAP)	2.0	ug/L	2.3	2.5	2.2
16	Bromodichloromethane	0.8	ug/L	0.2	0.4	0.9
16	Chloroform	0.7	ug/L	0.2	1.2	3.0
16	Tetrachloroethylene	1.1	ug/L	0.5	2.1	0.5
16	Vinyl chloride	4.0	ug/L	1.3	2.6	7.7
17	Benzene	0.5	ug/L	0.2	3.4	4.7
17	Toluene	0.5	ug/L	0.3	5.4	4.9
17	m–Xylene and p–Xylene	1.1	ug/L	0.2	5.0	4.5
17	o–Xylene	0.5	ug/L	0.2	2.6	2.3
19	Bis(2–ethylhexyl) phthalate	2.2	ug/L	6.1	5.9	5.2
23	Hexachlorobutadiene	10.0	ng/L	5.0	217.3	55.3
23	Hexachloroethane	10.0	ng/L	5.0	72.8	16.0
24	Total O8CDD	30.0	pg/L	56.7	35.0	30.0
25	Oil and grease	1.0	mg/L	1.2	1.3	1.3
98	Ftflow		m3/day	25174	2549	28941

EXPLANATORY NOTES:

(i) The average concentration of a parameter that did not qualify as "found" at a given sampling point is shown in smaller size.

(ii) Average concentration values for parameters in ATGs 1, 3 to 8 and 25 are reported even if the parameter did not qualify as "found" at the site.

SAMPLING POINTS:
IN 0100 – Intake Water to Site
PR 0200 – Carbon Contactor Effluent flows into CO 0300
CO 0300 – Effluent to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – ESSO CHEMICAL CANADA – SARNIA

ATG	PARAMETER	IN 0100	PR 0200	CO 0300	TOTAL
1	COD	199.753	77.006	771.361	771.361
2	Cyanide Total	0.128	0.030	0.277	0.277
4	Ammonia plus Ammonium	2.552	0.266	2.552	2.552
4	Nitrate+Nitrite	7.762	0.925	5.754	5.754
4	Total Kjeldahl Nitrogen	5.296	0.762	6.034	6.034
5	DOC	66.368	11.452	191.832	191.832
5	TOC	78.996	12.233	206.286	206.286
6	Total phosphorus	0.643	0.079	0.718	0.718
8	Total suspended solids	237.578	17.041	181.103	181.103
8	Volatile suspended solids	93.343	7.884	164.057	164.057
9	Aluminum	3.520	0.166	1.560	1.560
9	Copper	0.434	0.049	0.681	0.681
9	Zinc	0.211	0.049	0.685	0.685
14	Phenolics (4AAP)	0.067	0.007	0.062	0.062
16	Bromodichloromethane	0.006	0.001	0.025	0.025
16	Chloroform	0.006	0.003	0.081	0.081
16	Tetrachloroethylene	0.014	0.006	0.014	0.014
16	Vinyl chloride	0.039	0.011	0.202	0.202
17	Benzene	0.006	0.011	0.135	0.135
17	Toluene	0.008	0.018	0.145	0.145
17	m–Xylene and p–Xylene	0.006	0.017	0.129	0.129
17	o–Xylene	0.006	0.009	0.066	0.066
19	Bis(2–ethylhexyl) phthalate	0.154	0.016	0.130	0.130
23	Hexachlorobutadiene	*	0.001	0.001	0.001
23	Hexachloroethane	*	*	0.001	0.001
24	Total O8CDD	*	*	*	*
25	Oil and grease	33.461	3.195	38.147	38.147

EXPLANATORY NOTES:
(i) "*" loading less than 1 gram/day

SAMPLING POINTS:
IN 0100 – Intake Water to Site
PR 0200 – Carbon Contactor Effluent flows into CO 0300
CO 0300 – Effluent to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – ETHYL CANADA INC. – CORUNNA

ATG	PARAMETER	RMDL	UNIT	IN 0830	PR 0200	PR 0300	CO 0100
1	COD	10	mg/L	22	314	2200	22
3	Hydrogen ion (pH)			–	3.7	9.2	7.9
4	Ammonia plus Ammonium	0.25	mg/L	0.08	0.06	0.69	0.32
4	Nitrate+Nitrite	0.25	mg/L	1.51	20.09	0.29	0.49
4	Total Kjeldahl Nitrogen	0.5	mg/L	0.2	0.6	1.1	1.0
5	DOC	0.5	mg/L	2.5	6.7	20.1	2.1
5	TOC	5	mg/L	–	13	22	3
6	Total phosphorus	0.10	mg/L	0.07	0.09	0.18	0.20
7	Specific conductance	500	uS/cm	–	11591	80307	2299
8	Total suspended solids	5	mg/L	6	24	51	12
8	Volatile suspended solids	10	mg/L	4	17	7	8
9	Aluminum	30.0	ug/L	83.0	91099.9	20128.8	3041.8
9	Boron	50.0	ug/L	13.9	27.2	2650.0	72.5
9	Chromium	20.0	ug/L	2.0	51.5	5.7	2.7
9	Copper	10.0	ug/L	2.5	91.4	5.3	9.3
9	Lead	30.0	ug/L	10.9	534.3	16710.2	381.3
9	Nickel	20.0	ug/L	3.0	107.8	9.4	9.0
9	Thallium	30.0	ug/L	10.0	36.8	18.6	10.9
9	Zinc	10.0	ug/L	4.0	91.7	52.8	17.5
12	Mercury	0.10	ug/L	0.04	0.16	0.36	0.60
13	Tetra–alkyl lead (Total)	2.0	ug/L	–	2.3	262.6	4.1
13	Tri–alkyl lead (Total)	2.0	ug/L	–	34.1	405.4	24.6
14	Phenolics (4AAP)	2.0	ug/L	0.7	19.6	176.6	9.1
15	Sulphide	20.0	ug/L	55.0	84.0	137.5	32.5
16	1,1,2,2–Tetrachloroethane	4.3	ug/L	0.4	51.9	5.8	5.8
16	1,1,2–Trichloroethane	0.6	ug/L	0.6	92.3	10.4	10.4
16	1,1–Dichloroethane	0.8	ug/L	0.5	7760.9	9.3	128.1
16	1,1–Dichloroethylene	2.8	ug/L	0.4	118.4	12.6	12.9
16	1,2–Dichlorobenzene	1.4	ug/L	0.4	63.0	6.9	6.9
16	1,2–Dichloroethane	0.8	ug/L	0.4	218.5	2475.7	131.5
16	1,2–Dichloropropane	0.9	ug/L	0.5	84.1	9.7	9.1
16	1,3–Dichlorobenzene	1.1	ug/L	0.3	49.5	5.4	5.4
16	1,4–Dichlorobenzene	1.7	ug/L	0.2	35.2	3.9	3.9
16	Bromodichloromethane	0.8	ug/L	0.4	63.0	16.5	13.2
16	Bromoform	3.7	ug/L	0.4	49.6	5.5	5.5
16	Bromomethane	3.7	ug/L	2.4	411.8	46.7	45.4
16	Carbon tetrachloride	1.3	ug/L	0.3	47.2	5.2	5.2
16	Chlorobenzene	0.7	ug/L	0.6	94.5	10.4	10.4
16	Chloroform	0.7	ug/L	0.4	248.2	24.9	40.3
16	Chloromethane	3.7	ug/L	2.3	938.9	239.7	56.4
16	Cis–1,3–Dichloropropylene	1.4	ug/L	0.7	110.2	12.1	12.1
16	Dibromochloromethane	1.1	ug/L	0.4	65.2	7.2	9.0
16	Ethylene dibromide	1.0	ug/L	0.6	163.8	79.9	12.7
16	Methylene chloride	1.3	ug/L	0.3	1344.1	554.2	89.0
16	Tetrachloroethylene	1.1	ug/L	0.2	26.9	3.6	3.7
16	Trans–1,2–Dichloroethylene	1.4	ug/L	0.4	65.3	7.2	7.2
16	Trans–1,3–Dichloropropylene	1.4	ug/L	1.1	173.2	19.0	19.0
16	Trichloroethylene	1.9	ug/L	0.3	47.2	5.2	5.2
16	Trichlorofluoromethane	1.0	ug/L	0.3	47.2	5.2	5.2
16	Vinyl chloride	4.0	ug/L	2.9	521.1	84.8	53.8

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – ETHYL CANADA INC. – CORUNNA

ATG	PARAMETER	RMDL	UNIT	IN 0800	PR 0200	PR 0300	CO 0100
17	Benzene	0.5	ug/L	0.2	116.0	6.0	14.1
17	Ethylbenzene	0.6	ug/L	0.4	58.4	6.4	6.2
17	Styrene	0.5	ug/L	0.4	58.4	6.4	6.2
17	Toluene	0.5	ug/L	0.4	452.5	325.1	49.7
17	m–Xylene and p–Xylene	1.1	ug/L	0.5	88.5	8.4	8.3
17	o–Xylene	0.5	ug/L	0.4	6.4	7.4	7.2
19	1–Methylnaphthalene	3.2	ug/L	2.2	2.2	17.5	2.2
19	2–Methylnaphthalene	2.2	ug/L	1.5	1.5	11.4	1.5
19	Acenaphthene	1.3	ug/L	0.7	0.7	9.5	0.7
19	Benzylbutylphthalate	0.6	ug/L	0.6	0.6	0.6	0.6
19	Biphenyl	0.6	ug/L	0.4	0.4	5.2	0.4
19	Fluorene	1.7	ug/L	0.3	0.3	5.6	0.3
19	Indole	1.9	ug/L	1.2	1.2	437.0	7.5
19	Naphthalene	1.6	ug/L	0.4	0.4	5.8	0.3
19	Phenanthrene	0.4	ug/L	0.3	0.3	4.1	0.3
20	Phenol	2.4	ug/L	1.1	1.1	36.0	1.1
20	m–Cresol	3.4	ug/L	3.0	3.0	5.5	3.0
20	o–Cresol	3.7	ug/L	1.7	1.7	5.1	1.7
20	p–Cresol	3.5	ug/L	3.5	3.5	5.6	3.5
25	Oil and grease	1.0	mg/L	1.1	8.9	5.9	1.3
98	Ftflow		m3/day	–	207	590	31080

EXPLANATORY NOTES:

(i) "–" no concentration data available or not required by regulation

(ii) Average concentration values for parameters in ATGs 1, 3–8 and 25 are reported even if the parameter did not qualify as "found" at the site.

(iii) Shading of non–intake data indicates uncertain presence or absence because the lowest analytical response (<WE) that was reported for a significant proportion of the data was greater than 10 times the RMDL.

(iv) The average concentration of a parameter that did not qualify as "found" at a given sampling point is shown in smaller size.

SAMPLING POINTS

IN 0800 – Intake Water to Site

CO 0100 – Final Effluent to River

PR 0200 – Neutralization Pit Effluent flows into CO 0100

PR 0300 – TEL Process Effluent flows into CO 0100

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – ETHYL CANADA INC. – CORUNNA

ATG	PARAMETER	IN 0800	PR 0200	PR 0300	CO 0100	TOTAL
1	COD	653.466	62.422	1479.500	818.070	818.070
4	Ammonia plus Ammonium	2.266	0.011	0.435	11.720	11.720
4	Nitrate+Nitrite	43.809	7.361	0.193	16.300	16.300
4	Total Kjeldahl Nitrogen	5.683	0.123	0.642	35.661	35.661
5	DOC	77.098	1.320	14.517	66.288	66.288
5	TOC	–	2.751	16.617	85.809	85.809
6	Total phosphorus	2.083	0.017	0.214	6.238	6.238
8	Total suspended solids	166.186	6.464	39.226	385.470	385.470
8	Volatile suspended solids	104.906	3.280	4.166	282.542	282.542
9	Aluminum	2.432	23.330	14.085	104.686	104.686
9	Boron	0.387	0.005	2.173	2.527	2.527
9	Chromium	0.060	0.010	0.004	0.097	0.097
9	Copper	0.074	0.016	0.004	0.327	0.327
9	Lead	0.300	0.121	11.716	12.421	12.421
9	Nickel	0.270	0.019	0.008	0.317	0.317
9	Thallium	0.300	0.007	0.018	0.375	0.375
9	Zinc	0.120	0.018	0.036	0.627	0.627
12	Mercury	0.001	*	*	0.020	0.020
13	Tetra–alkyl lead (Total)	–	*	0.186	0.136	0.136
13	Tri–alkyl lead (Total)	–	0.009	0.254	0.876	0.876
14	Phenolics (4AAP)	0.020	0.004	0.099	0.311	0.311
15	Sulphide	1.055	0.018	0.085	1.150	1.150
16	1,1,2,2–Tetrachloroethane	0.013	0.010	0.006	0.176	0.176
16	1,1,2–Trichloroethane	0.018	0.017	0.010	0.311	0.311
16	1,1–Dichloroethane	0.015	1.751	0.009	4.458	4.458
16	1,1–Dichloroethylene	0.012	0.024	0.012	0.414	0.414
16	1,2–Dichlorobenzene	0.012	0.012	0.007	0.212	0.212
16	1,2–Dichloroethane	0.012	0.052	2.073	4.715	4.715
16	1,2–Dichloropropane	0.015	0.016	0.010	0.280	0.280
16	1,3–Dichlorobenzene	0.009	0.009	0.005	0.166	0.166
16	1,4–Dichlorobenzene	0.006	0.007	0.004	0.118	0.118
16	Bromodichloromethane	0.012	0.012	0.018	0.400	0.400
16	Bromoform	0.011	0.009	0.005	0.168	0.168
16	Bromomethane	0.072	0.076	0.048	1.378	1.378
16	Carbon tetrachloride	0.009	0.009	0.005	0.159	0.159
16	Chlorobenzene	0.018	0.017	0.011	0.318	0.318
16	Chloroform	0.012	0.048	0.025	1.257	1.257
16	Chloromethane	0.069	0.245	0.184	1.867	1.867
16	Cis–1,3–Dichloropropylene	0.021	0.020	0.013	0.371	0.371
16	Dibromochloromethane	0.012	0.012	0.007	0.281	0.281
16	Ethylene dibromide	0.018	0.043	0.057	0.408	0.408
16	Methylene chloride	0.009	0.365	0.368	2.894	2.894
16	Tetrachloroethylene	0.006	0.005	0.004	0.113	0.113
16	Trans–1,2–Dichloroethylene	0.012	0.012	0.007	0.219	0.219
16	Trans–1,3–Dichloropropylene	0.033	0.032	0.020	0.584	0.584
16	Trichloroethylene	0.009	0.009	0.005	0.159	0.159
16	Trichlorofluoromethane	0.009	0.009	0.005	0.159	0.159
16	Vinyl chloride	0.087	0.098	0.070	1.680	1.680

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – ETHYL CANADA INC. – CORUNNA

ATG	PARAMETER	IN 0800	PR 0200	PR 0300	CO 0100	TOTAL
17	Benzene	0.006	0.020	0.011	0.445	0.445
17	Ethylbenzene	0.012	0.011	0.006	0.192	0.192
17	Styrene	0.012	0.011	0.006	0.192	0.192
17	Toluene	0.012	0.090	0.304	1.651	1.651
17	m–Xylene and p–Xylene	0.015	0.015	0.008	0.255	0.255
17	o–Xylene	0.012	0.012	0.007	0.223	0.223
19	1–Methylnaphthalene	0.006	*	0.014	0.077	0.077
19	2–Methylnaphthalene	0.005	*	0.010	0.053	0.053
19	Acenaphthene	0.021	*	0.008	0.025	0.025
19	Benzylbutylphthalate	0.022	*	*	0.021	0.021
19	Biphenyl	0.012	*	0.004	0.014	0.014
19	Fluorene	0.009	*	0.005	0.011	0.011
19	Indole	0.036	*	0.352	0.260	0.260
19	Naphthalene	0.008	*	0.004	0.011	0.011
19	Phenanthrene	0.009	*	0.003	0.011	0.011
20	Phenol	0.038	*	0.022	0.038	0.038
20	m–Cresol	0.020	0.001	0.004	0.103	0.103
20	o–Cresol	0.051	*	0.003	0.059	0.059
20	p–Cresol	0.105	0.001	0.004	0.120	0.120
25	Oil and grease	42.278	2.026	4.702	42.278	42.278

EXPLANATORY NOTES:
(i) "–" not required by regulation or no conc/flow data available
(ii) "*" loading less than 1 gram/day
(iii) Shading of non–intake data indicates uncertain presence or absence because the lowest analytical response (<WE) that was reported for a significant proportion of the data was greater than 10 times the RMDL.

SAMPLING POINTS:
IN 0800 – Intake Water to Site
CO 0100 – Final Effluent to River
PR 0200 – Neutralization Pit Effluent flows into CO 0100
PR 0300 – TEL Process Effluent flows into CO 0100

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES **
PLANT SITE – G.E. PLASTICS CANADA LTD. – COBOURG

ATG	PARAMETER	RMDL	UNIT	IN 0600	CO 0100	OT 0400
1	COD	10	mg/L	9	56	–
2	Cyanide Total	0.005	mg/L	0.002	0.088	0.003
3	Hydrogen ion (pH)			–	7.8	7.7
4	Ammonia plus Ammonium	0.25	mg/L	–	20.18	5.45
4	Nitrate+Nitrite	0.25	mg/L	–	24.41	2.01
4	Total Kjeldahl Nitrogen	0.5	mg/L	–	24.4	9.8
5	DOC	0.5	mg/L	–	16.5	10.6
5	TOC	5	mg/L	3	29	9
6	Total phosphorus	0.10	mg/L	0.06	0.51	0.81
7	Specific conductance	500	uS/cm	–	2303	532
8	Total suspended solids	5	mg/L	–	26	9
8	Volatile suspended solids	10	mg/L	–	23	–
9	Aluminum	30.0	ug/L	106.0	235.9	94.3
9	Cadmium	2.0	ug/L	1.2	1.4	2.2
9	Zinc	10.0	ug/L	24.0	10.3	47.8
10	Antimony	5.0	ug/L	2.8	62.5	14.4
12	Mercury	0.10	ug/L	0.04	0.05	0.16
14	Phenolics (4AAP)	2.0	ug/L	2.2	43.3	4710.4
15	Sulphide	20.0	ug/L	19.5	120.0	–
17	o–Xylene	0.5	ug/L	0.4	0.5	0.4
25	Oil and grease	1.0	mg/L	1.2	2.5	3.5
98	Ftflow		m3/day	1680	1787	126

EXPLANATORY NOTES:
(i) "–" no concentration data available or not required by regulation
(ii) Average concentration values for parameters in ATGs 1, 3 to 8 and 25 are reported even if the parameter did not qualify as "found" at the site.
(iii) The average concentration of a parameter that did not qualify as "found" at a given sampling point is shown in smaller size.

SAMPLING POINTS:
IN 0600 – Intake Water to Site
CO 0100 – Clarifier Effluent to Lake
OT 0400 – Cooling Water to Lake

** The monitoring data reflect plant operations which included resin production and final compounding. As of April 1992, resin production was discontinued leaving only compounding operations.

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day) **
PLANT SITE – GE PLASTICS CANADA LTD. – COBOURG

ATG	PARAMETER	IN 0600	CO 0100	OT 0400	TOTAL
1	COD	17.483	129.646	–	129.646
2	Cyanide Total	0.004	0.157	*	0.157
4	Ammonia plus Ammonium	–	37.526	0.132	37.658
4	Nitrate+Nitrite	–	40.471	0.052	40.523
4	Total Kjeldahl Nitrogen	–	44.730	0.236	44.966
5	DOC	–	29.176	1.893	31.069
5	TOC	6.078	48.197	0.982	49.179
6	Total phosphorus	0.015	0.837	0.009	0.846
8	Total suspended solids	–	43.171	0.847	44.018
8	Volatile suspended solids	–	41.349	–	41.349
9	Aluminum	0.015	0.380	0.012	0.392
9	Cadmium	0.002	0.002	*	0.002
9	Zinc	0.045	0.018	0.002	0.020
10	Antimony	0.005	0.107	0.001	0.108
12	Mercury	*	*	*	*
14	Phenolics (4AAP)	0.004	0.074	0.056	0.130
15	Sulphide	0.037	0.256	–	0.256
17	o–Xylene	0.001	0.001	*	0.001
25	Oil and grease	2.775	4.435	0.208	4.643

EXPLANATORY NOTES:
(i) "–" not required by regulation or no conc/flow data available
(ii) "*" loading less than 1 gram/day

SAMPLING POINTS:
IN 0600 – Intake Water to Site
CO 0100 – Clarifier Effluent to Lake
OT 0400 – Cooling Water to Lake

** The monitoring data reflect plant operations which included resin production and final compounding As of April 1992, resin production was discontinued leaving only compounding operations.

OCM SECTOR TWELVE MONTH REPORT – DATA FROM FEB 1/90 TO JAN 31/91

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – GUARDSMAN PRODUCTS LTD. – CORNWALL

ATG	PARAMETER	RMDL	UNIT	IN 0400	OT 0100
1	COD	10	mg/L	–	–
3	Hydrogen ion (pH)			–	6.1
4	Ammonia plus Ammonium	0.25	mg/L	–	–
4	Nitrate + Nitrite	0.25	mg/L	–	–
4	Total Kjeldahl Nitrogen	0.5	mg/L	–	–
5	DOC	0.5	mg/L	–	4.5
5	TOC	5	mg/L	–	5
6	Total phosphorus	0.10	mg/L	–	0.12
7	Specific conductance	500	uS/cm	–	1977
8	Total suspended solids	5	mg/L	–	3
8	Volatile suspended solids	10	mg/L	–	4
9	Aluminum	30.0	ug/L	–	59.8
9	Beryllium	10.0	ug/L	–	6.2
9	Cadmium	2.0	ug/L	–	3.1
9	Copper	10.0	ug/L	–	8.8
9	Molybdenum	20.0	ug/L	–	19.2
9	Zinc	10.0	ug/L	–	20.4
17	Toluene	0.5	ug/L	–	5.2
25	Oil and grease	1.0	mg/L	–	0.9
98	Ftflow		m3/day	–	104

EXPLANATORY NOTES:

(i) "–" no concentration data available or not required by regulation

(ii) The average concentration of a parameter that did not qualify as "found" at a given sampling point is shown in smaller size.

(iii) Average concentration values for parameters in ATGs 1, 3 to 8 and 25 are reported even if the parameter did not qualify as "found" at the site.

SAMPLING POINTS
IN 0400 – Intake Water to Site
OT 0100 – Southeast Drain to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM FEB 1/90 TO JAN 31/91

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – GUARDSMAN PRODUCTS LTD. – CORNWALL

ATG	PARAMETER	IN 0400	OT 0100	TOTAL
1	COD	–	–	–
4	Ammonia plus Ammonium	–	–	–
4	Nitrate + Nitrite	–	–	–
4	Total Kjeldahl Nitrogen	–	–	–
5	DOC	–	0.450	0.450
5	TOC	–	0.541	0.541
6	Total phosphorus	–	0.012	0.012
8	Total suspended solids	–	0.226	0.226
8	Volatile suspended solids	–	0.297	0.297
9	Aluminum	–	0.006	0.006
9	Beryllium	–	0.001	0.001
9	Cadmium	–	*	*
9	Copper	–	0.001	0.001
9	Molybdenum	–	0.002	0.002
9	Zinc	–	0.002	0.002
17	Toluene	–	*	*
25	Oil and grease	–	0.075	0.075

EXPLANATORY NOTES:
(i) "–" no concentration data available or not required by regulation
(ii) "*" loading less than 1 gram/day

SAMPLING POINTS
IN 0400 – Intake Water to Site
OT 0100 – Southeast Drain to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM FEB 1/90 TO JAN 31/91

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – MORBERN INC. – CORNWALL

ATG	PARAMETER	RMDL	UNIT	IN 0400	OT 0100
1	COD	10	mg/L	–	–
3	Hydrogen ion (pH)			–	8.0
4	Ammonia plus Ammonium	0.25	mg/L	–	–
4	Nitrate + Nitrite	0.25	mg/L	–	–
4	Total Kjeldahl Nitrogen	0.5	mg/L	–	–
5	DOC	0.5	mg/L	–	2.6
5	TOC	5	mg/L	–	3
6	Total phosphorus	0.10	mg/L	–	0.03
7	Specific conductance	500	uS/cm	–	298
8	Total suspended solids	5	mg/L	–	3
8	Volatile suspended solids	10	mg/L	–	4
9	Aluminum	30.0	ug/L	–	121.2
9	Boron	50.0	ug/L	–	61.4
9	Copper	10.0	ug/L	–	14.1
9	Zinc	10.0	ug/L	–	42.8
14	Phenolics (4AAP)	2.0	ug/L	–	57.3
16	1,2–Dichloroethane	0.8	ug/L	–	0.6
16	Bromodichloromethane	0.8	ug/L	–	6.8
16	Bromomethane	3.7	ug/L	–	3.2
16	Chloroform	0.7	ug/L	–	9.1
16	Dibromochloromethane	1.1	ug/L	–	4.4
17	Benzene	0.5	ug/L	–	0.7
17	Toluene	0.5	ug/L	–	1.0
17	o–Xylene	0.5	ug/L	–	0.7
25	Oil and grease	1.0	mg/L	–	1.2
98	Ftflow		m3/day	–	1230

EXPLANATORY NOTES:

(i) "–" no concentration data available or not required by regulation

(ii) The average concentration of a parameter that did not qualify as "found" at a given sampling point is shown in smaller size.

(iii) Average concentration values for parameters in ATGs 1, 3 to 8 and 25 are reported even if the parameter did not qualify as "found" at the site.

SAMPLING POINTS
IN 0400 – Intake Water to Site
OT 0100 – East Cooling Water to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM FEB 1/90 TO JAN 31/91

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – MORBERN INC. – CORNWALL

ATG	PARAMETER	IN 0400	OT 0100	TOTAL
1	COD	–	–	–
4	Ammonia plus Ammonium	–	–	–
4	Nitrate + Nitrite	–	–	–
4	Total Kjeldahl Nitrogen	–	–	–
5	DOC	–	3.382	3.382
5	TOC	–	3.570	3.570
6	Total phosphorus	–	0.041	0.041
8	Total suspended solids	–	4.216	4.216
8	Volatile suspended solids	–	4.736	4.736
9	Aluminum	–	0.173	0.173
9	Boron	–	0.087	0.087
9	Copper	–	0.021	0.021
9	Zinc	–	0.054	0.054
14	Phenolics (4AAP)	–	0.018	0.018
16	1,2–Dichloroethane	–	0.001	0.001
16	Bromodichloromethane	–	0.009	0.009
16	Bromomethane	–	0.002	0.002
16	Chloroform	–	0.009	0.009
16	Dibromochloromethane	–	0.004	0.004
17	Benzene	–	0.001	0.001
17	Toluene	–	0.001	0.001
17	o–Xylene	–	*	*
25	Oil and grease	–	1.525	1.525

EXPLANATORY NOTES:
(i) "–" no concentration data available or not required by regulation
(ii) "*" loading less than 1 gram/day

SAMPLING POINTS
IN 0400 – Intake Water to Site
OT 0100 – East Cooling Water to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – NOVACOR CHEMICALS LTD. – MOORETOWN

ATG	PARAMETER	RMDL	UNIT	IN 0600	CO 0100
1	COD	10	mg/L	51	26
3	Hydrogen ion (pH)			7.9	8.2
4	Ammonia plus Ammonium	0.25	mg/L	0.03	0.42
4	Nitrate+Nitrite	0.25	mg/L	0.25	0.66
4	Total Kjeldahl Nitrogen	0.5	mg/L	0.5	1.4
5	DOC	0.5	mg/L	1.6	5.1
5	TOC	5	mg/L	2	7
6	Total phosphorus	0.10	mg/L	0.10	0.41
7	Specific conductance	500	uS/cm	218	617
8	Total suspended solids	5	mg/L	5	15
8	Volatile suspended solids	10	mg/L	4	6
9	Aluminum	30.0	ug/L	50.0	541.7
9	Zinc	10.0	ug/L	6.5	34.3
14	Phenolics (4AAP)	2.0	ug/L	0.7	1.7
15	Sulphide	20.0	ug/L	39.5	44.5
16	Bromodichloromethane	0.8	ug/L	3.2	0.4
16	Chloroform	0.7	ug/L	14.1	0.4
16	Dibromochloromethane	1.1	ug/L	2.7	0.4
19	Bis(2–ethylhexyl) phthalate	2.2	ug/L	1.4	2.0
25	Oil and grease	1.0	mg/L	1.0	1.3
98	Ftflow		m3/day	–	1660

EXPLANATORY NOTES:

(i) "–" no concentration data available or not required by regulation

(ii) The average concentration of a parameter that did not qualify as "found" at a given sampling point are shown in smaller size.

(iii) Average concentration values for parameters in ATGs 1, 3 to 8 and 25 are reported even if the parameter did not qualify as "found" at the site.

SAMPLING POINTS
IN 0600 – Intake Water to Site
CO 0100 – Final Effluent to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – NOVACOR CHEMICALS LTD. – MOORETOWN

ATG	PARAMETER	IN 0600	CO 0100	TOTAL
1	COD	[illegible]	40.549	40.549
4	Ammonia plus Ammonium	[illegible]	0.661	0.661
4	Nitrate+Nitrite	[illegible]	1.042	1.042
4	Total Kjeldahl Nitrogen	[illegible]	2.215	2.215
5	DOC	[illegible]	8.459	8.459
5	TOC	[illegible]	11.053	11.053
6	Total phosphorus	[illegible]	0.679	0.679
8	Total suspended solids	[illegible]	24.785	24.785
8	Volatile suspended solids	[illegible]	9.710	9.710
9	Aluminum	[illegible]	0.886	0.886
9	Zinc	[illegible]	0.056	0.056
14	Phenolics (4AAP)	[illegible]	0.003	0.003
15	Sulphide	[illegible]	0.069	0.069
16	Bromodichloromethane	[illegible]	0.001	0.001
16	Chloroform	[illegible]	0.001	0.001
16	Dibromochloromethane	[illegible]	0.001	0.001
19	Bis(2–ethylhexyl) phthalate	[illegible]	0.003	0.003
25	Oil and grease	[illegible]	2.163	2.163

SAMPLING POINTS:
IN 0600 – Intake Water to Site
CO 0100 – Final Effluent to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – POLYSAR LTD. – SARNIA

ATG	PARAMETER	RMDL	UNIT	IN 2400	PR 0300	PR 0900	PR 1800	CO 0200	CO 0400	CO 0500	OT 1400	BA 1700	@@ CO 1100
1	COD	10	mg/L	17	11	45	69	10	9	22	–	18	15
3	Hydrogen ion (pH)			8.2	7.6	7.6	7.6	8.2	8.2	8.3	8.2	7.7	8.2
4	Ammonia plus Ammonium	0.25	mg/L	0.13	0.16	0.13	1.57	0.11	0.08	0.06	–	1.78	0.09
4	Nitrate+Nitrite	0.25	mg/L	0.36	0.23	0.09	2.15	0.34	0.25	0.33	–	2.75	0.45
4	Total Kjeldahl Nitrogen	0.5	mg/L	0.5	0.3	0.8	2.3	0.3	0.2	0.2	–	2.0	0.3
5	DOC	0.5	mg/L	2.8	4.7	10.8	16.7	2.9	2.8	2.7	3.1	8.9	3.2
5	TOC	5	mg/L	3	5	13	15	7	2	4	3	8	3
6	Total phosphorus	0.10	mg/L	0.01	0.28	0.36	0.71	0.10	0.10	0.11	0.10	0.11	0.10
7	Specific conductance	500	uS/cm	226	239	467	2536	230	234	230	222	5099	304
8	Total suspended solids	5	mg/L	5	36	24	15	5	4	4	7	12	6
8	Volatile suspended solids	10	mg/L	4	8	5	8	4	4	4	–	4	4
9	Aluminum	30.0	ug/L	75.6	7649.6	3443.1	1453.7	190.8	96.1	55.0	91.3	163.1	118.2
9	Boron	50.0	ug/L	13.0	12.5	17.1	31.6	13.2	12.9	13.8	13.3	65.5	43.3
9	Cobalt	20.0	ug/L	2.3	468.5	2.3	2.2	12.3	2.4	2.3	2.3	4.7	2.4
9	Molybdenum	20.0	ug/L	3.0	3.0	3.1	14.9	3.0	3.0	3.0	3.0	3.5	3.0
9	Nickel	20.0	ug/L	9.0	9.8	9.0	23.3	9.0	9.0	9.0	9.0	9.1	9.0
9	Zinc	10.0	ug/L	6.5	9.3	717.9	20.0	5.8	17.6	8.5	8.3	17.1	8.3
10	Antimony	5.0	ug/L	5.4	6.3	4.7	5.4	3.3	9.0	4.8	–	17.3	4.8
11	Chromium (hexavalent)	10.0	ug/L	20.0	–	20.0	–	–	10.5	–	–	–	–
14	Phenolics (4AAP)	2.0	ug/L	1.3	10.5	9.7	10.1	3.1	1.4	2.2	–	16.3	2.4
15	Sulphide	20.0	ug/L	31.7	37.3	127.5	125.0	32.3	32.5	40.0	–	55.0	60.0

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – POLYSAR LTD. – SARNIA

ATG	PARAMETER	RMDL	UNIT	IN 2400	PR 0300	PR 0900	PR 1800	CO 0200	CO 0400	CO 0500	OT 1400	BA 1700	@@ CO 1100
16	1,1,2,2–Tetrachloroethane	4.3	ug/L	0.4	1.6	20.0	0.8	0.4	3.5	0.4	0.4	0.4	0.4
16	1,1,2–Trichloroethane	0.6	ug/L	0.6	2.3	29.2	0.9	0.6	3.6	0.6	0.6	0.6	0.6
16	1,1–Dichloroethane	0.8	ug/L	0.3	2.0	24.9	0.7	0.5	2.8	0.5	0.5	0.5	0.5
16	1,1–Dichloroethylene	2.8	ug/L	0.4	1.6	93.4	0.7	0.4	3.9	0.4	0.4	0.4	0.4
16	1,2–Dichlorobenzene	1.4	ug/L	0.5	1.7	21.9	0.7	0.4	3.0	0.4	0.4	0.4	0.4
16	1,2–Dichloroethane	0.8	ug/L	0.4	1.7	21.5	0.6	0.4	2.5	0.4	0.4	0.4	0.4
16	1,2–Dichloropropane	0.9	ug/L	0.5	2.2	28.2	0.8	0.5	3.5	0.5	0.5	0.5	0.5
16	1,3–Dichlorobenzene	1.1	ug/L	0.3	1.4	17.8	0.6	0.3	2.7	0.3	0.3	0.3	0.3
16	1,4–Dichlorobenzene	1.7	ug/L	0.2	1.0	13.9	0.5	0.2	2.4	0.2	0.2	0.2	0.2
16	Bromodichloromethane	0.8	ug/L	0.3	7.4	35.3	0.7	1.6	4.4	2.8	0.4	0.4	1.1
16	Bromoform	3.7	ug/L	0.4	1.6	17.9	9.8	0.4	2.8	0.4	0.4	0.4	3.0
16	Bromomethane	3.7	ug/L	2.2	47.4	4153.4	2.9	2.3	114.9	2.3	2.2	2.4	2.3
16	Carbon tetrachloride	1.3	ug/L	0.3	1.3	16.7	0.6	0.3	2.7	0.3	0.3	0.3	0.3
16	Chlorobenzene	0.7	ug/L	0.6	2.4	29.5	0.8	0.6	3.1	0.6	0.6	0.6	0.6
16	Chloroform	0.7	ug/L	0.5	27.1	67.7	7.5	1.4	3.2	5.8	0.5	0.5	1.5
16	Chloromethane	3.7	ug/L	2.2	166.9	56526.1	4.0	2.2	1194.3	2.6	2.2	2.3	2.4
16	Cis–1,3–Dichloropropylene	1.4	ug/L	0.3	2.0	25.1	1.0	0.7	4.0	0.7	0.7	0.7	0.7
16	Dibromochloromethane	1.1	ug/L	0.6	1.8	28.3	0.9	0.6	3.3	2.6	0.4	0.4	1.3
16	Ethylene dibromide	1.0	ug/L	0.6	2.3	29.4	0.9	0.6	3.6	0.6	0.6	0.6	0.6
16	Methylene chloride	1.3	ug/L	0.6	39.6	200.8	2.1	2.3	7.1	0.4	0.4	0.3	0.3
16	Tetrachloroethylene	1.1	ug/L	0.2	0.8	11.0	0.6	0.2	2.8	0.2	0.2	0.2	0.2
16	Trans–1,2–Dichloroethylene	1.4	ug/L	0.4	1.7	21.3	0.6	0.4	2.5	0.4	0.4	0.4	0.4
16	Trans–1,3–Dichloropropylene	1.4	ug/L	1.0	4.4	53.5	1.3	1.1	5.4	1.1	1.0	1.1	1.1
16	Trichloroethylene	1.9	ug/L	0.3	1.3	16.7	0.6	0.3	2.7	0.3	0.3	0.3	0.3
16	Trichlorofluoromethane	1.0	ug/L	0.4	1.5	21.3	1.1	0.3	5.4	0.3	0.3	0.3	0.3
16	Vinyl chloride	4.0	ug/L	2.7	11.7	1567	3.7	2.8	15.0	2.8	2.7	2.9	3.1
17	Benzene	0.5	ug/L	0.5	2384.5	247.5	1.6	65.3	61.0	0.8	0.2	0.4	0.8
17	Ethylbenzene	0.6	ug/L	0.3	1.6	19.0	0.7	0.4	3.2	0.7	0.5	1.2	0.4
17	Styrene	0.5	ug/L	0.4	1.5	18.1	0.6	0.4	2.5	0.4	0.4	0.4	1.5
17	Toluene	0.5	ug/L	0.7	26.7	90.7	1.4	1.8	16.1	2.5	0.5	0.4	1.5
17	m–Xylene and p–Xylene	1.1	ug/L	0.6	2.5	30.7	1.1	0.6	4.9	0.7	0.5	0.5	0.5
17	o–Xylene	0.5	ug/L	0.4	1.7	21.0	0.6	0.4	2.5	0.4	0.4	0.4	0.4

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – POLYSAR LTD. – SARNIA

ATG	PARAMETER	RMDL	UNIT	IN 2400	PR 0300	PR 0900	PR 1800	CO 0200	CO 0400	CO 0500	OT 1400	BA 1700	@@ CO 1100
18	Acrolein	4.0	ug/L	2.9	13.5	150.6	4.2	3.0	17.6	3.6	2.8	3.0	3.8
18	Acrylonitrile	4.2	ug/L	1.8	8.5	97.0	2.8	1.9	11.2	1.9	1.8	1.9	1.9
19	Bis(2–ethylhexyl) phthalate	2.2	ug/L	1.4	1.4	1.8	7.2	2.3	2.3	1.4	–	15.1	1.5
20	2,6–Dichlorophenol	2.0	ug/L	1.1	1.1	1.1	1.1	1.1	1.1	1.1	–	2.6	1.1
23	1,2,4–Trichlorobenzene	10.0	ng/L	4.6	31.1	6.1	15.0	6.7	113.9	8.2	–	11.1	7.2
23	2,4,5–Trichlorotoluene	10.0	ng/L	2.8	3.0	3.3	4.8	8.0	3.1	3.2	–	2.7	110.1
23	Hexachlorobenzene	10.0	ng/L	3.1	6.4	3.4	3.5	5.9	7.5	4.0	–	3.5	16.5
23	Hexachlorobutadiene	10.0	ng/L	7.2	4.5	2.6	4.5	19.8	5.9	7.9	–	2.5	74.7
23	Hexachloroethane	10.0	ng/L	7.0	5.8	5.8	6.7	14.0	28.7	4.1	–	1.7	13.2
23	Octachlorostyrene	10.0	ng/L	1.8	2.7	2.7	2.7	3.5	2.8	2.8	–	2.6	10.7
23	Pentachlorobenzene	10.0	ng/L	2.1	2.4	2.1	3.0	3.0	2.3	2.8	–	2.1	9.7
25	Oil and grease	1.0	mg/L	1.0	2.1	5.7	3.8	1.2	1.2	1.5	1.5	3.5	1.5
98	Ftflow		m3/day	–	2674	2338	12432	67567	143338	169478	62922	**	105363
98	Volume Discharged – Total		m3	**	**	**	**	**	**	**	**	418	**

EXPLANTATORY CODES:

(i) "–" no concentration data available or not required by regulation
(ii) "**" parameter does not pertain to this stream
(iii) "****" cyanide concentration less than 0.001 mg/L
(iv) Average concentration values for parameters in ATGs 1, 3–8 and 25 are reported even if the parameter did not qualify as "found" at the site.
(v) Shading of non–intake data indicates uncertain presence or absence because the lowest analytical response (<WE) that was reported for a significant proportion of the data was greater than 10 times the RMDL.
(vi) The average concentration of a parameter that did not qualify as "found" at a given sampling point is shown in smaller size.

SAMPLING POINTS

IN 2400 – Intake Water
PR 0300 – Crumb Separator flows into CO 0200
PR 0900 – Butyl II flows into CO 0400
BA 1700 – Neutralization Sump to River
PR 1800 – Biox Effluent to River
CO 0200 – 72 inch Sewer to River
CO 0400 – 66 inch Sewer to River
CO 0500 – 54 inch Sewer to River
OT 1400 – Turbine Cooling Water to River
@@ CO 1100 – Cole Drain to River draining numerous plant sites – monitored by Polysar

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – POLYSAR LTD. – SARNIA

ATG	PARAMETER	IN 2400	PR 0300	PR 0900	PR 1800	CO 0200	CO 0400	CO 0500	OT 1400	BA 1700	TOTAL	@@ CO 1100
1	COD	[illegible]	30.189	120.638	929.999	680.025	1455.575	3562.976	–	12.514	6641.089	1094.036
4	Ammonia plus Ammonium	[illegible]	0.427	0.339	19.582	8.008	13.991	8.899	–	1.606	52.086	7.102
4	Nitrate+Nitrite	[illegible]	0.533	0.254	29.014	22.638	34.313	54.405	–	2.032	142.402	41.869
4	Total Kjeldahl Nitrogen	[illegible]	0.866	1.872	29.026	20.466	33.515	39.235	–	1.900	124.142	25.399
5	DOC	[illegible]	12.962	25.628	200.134	199.310	411.053	466.467	144.030	6.950	1427.944	309.927
5	TOC	[illegible]	14.377	30.578	187.095	488.471	213.966	749.606	7.448	7.009	1653.595	421.312
6	Total phosphorus	[illegible]	0.761	0.765	8.463	6.985	15.011	18.498	7.048	0.082	56.087	9.309
8	Total suspended solids	[illegible]	100.055	59.551	189.032	316.758	616.704	744.725	299.740	10.053	2177.012	708.704
8	Volatile suspended solids	[illegible]	21.457	12.582	98.273	249.627	576.532	618.900	–	2.606	1545.938	326.102
9	Aluminum	[illegible]	21.129	7.368	18.459	13.415	14.888	8.932	3.306	0.090	59.090	11.311
9	Boron	[illegible]	0.035	0.045	0.388	0.936	1.981	2.261	0.784	0.055	6.405	4.080
9	Cobalt	[illegible]	1.295	0.006	0.027	0.873	0.349	0.361	0.127	0.004	1.741	0.226
9	Molybdenum	[illegible]	0.008	0.008	0.184	0.214	0.451	0.492	0.189	0.003	1.533	0.277
9	Nickel	[illegible]	0.027	0.023	0.293	0.641	1.355	1.478	0.566	0.007	4.340	0.830
9	Zinc	[illegible]	0.025	1.623	0.249	0.418	2.677	1.440	0.586	0.011	5.381	0.738
10	Antimony	[illegible]	0.015	0.011	0.069	0.220	1.306	0.782	–	0.016	2.393	0.459
11	Chromium (hexavalent)	[illegible]	–	0.063	–	–	1.321	–	–	–	1.321	–
14	Phenolics (4AAP)	[illegible]	0.029	0.021	0.113	0.228	0.211	0.369	–	0.010	0.931	0.217
15	Sulphide	[illegible]	0.096	0.349	1.691	2.281	5.280	6.789	–	0.026	16.067	5.778

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – POLYSAR LTD. – SARNIA

ATG	PARAMETER	IN 2400	PR 0300	PR 0900	PR 1800	CO 0200	CO 0400	CO 0500	OT 1400	BA 1700	TOTAL	@@ CO 1100
16	1,1,2,2–Tetrachloroethane	0.156	0.005	0.055	0.009	0.031	0.430	0.076	0.029	*	0.575	0.043
16	1,1,2–Trichloroethane	0.262	0.007	0.077	0.010	0.042	0.518	0.103	0.041	*	0.714	0.060
16	1,1–Dichloroethane	0.216	0.006	0.065	0.008	0.035	0.418	0.086	0.034	*	0.581	0.049
16	1,1–Dichloroethylene	0.179	0.005	0.345	0.007	0.028	0.594	0.070	0.027	*	0.726	0.040
16	1,2–Dichlorobenzene	0.179	0.005	0.057	0.007	0.028	0.403	0.070	0.027	*	0.535	0.040
16	1,2–Dichloroethane	0.175	0.005	0.056	0.007	0.028	0.366	0.069	0.027	*	0.497	0.039
16	1,2–Dichloropropane	0.220	0.007	0.074	0.009	0.036	0.492	0.086	0.034	*	0.657	0.049
16	1,3–Dichlorobenzene	0.137	0.004	0.049	0.006	0.021	0.351	0.053	0.021	*	0.452	0.030
16	1,4–Dichlorobenzene	0.035	0.003	0.039	0.005	0.015	0.295	0.036	0.014	*	0.365	0.020
16	Bromodichloromethane	0.179	0.020	0.106	0.008	0.112	0.676	0.486	0.027	*	1.309	0.095
16	Bromoform	0.171	0.005	0.049	0.122	0.026	0.360	0.070	0.025	*	0.603	0.220
16	Bromomethane	1.025	0.134	10.048	0.035	0.164	17.992	0.405	0.164	0.002	18.762	0.233
16	Carbon tetrachloride	0.137	0.004	0.046	0.006	0.021	0.339	0.053	0.021	*	0.440	0.030
16	Chlorobenzene	0.258	0.007	0.076	0.009	0.041	0.482	0.102	0.041	*	0.675	0.058
16	Chloroform	0.182	0.074	0.210	0.094	0.100	0.495	1.013	0.030	*	1.732	0.123
16	Chloromethane	0.995	0.470	140.590	0.046	0.159	162.238	0.436	0.157	0.002	163.038	0.235
16	Cis–1,3–Dichloropropylene	0.304	0.009	0.092	0.011	0.048	0.594	0.120	0.048	*	0.821	0.069
16	Dibromochloromethane	0.179	0.005	0.075	0.010	0.039	0.455	0.443	0.027	*	0.974	0.103
16	Ethylene dibromide	0.262	0.007	0.077	0.010	0.042	0.518	0.103	0.041	*	0.714	0.059
16	Methylene chloride	0.264	0.107	0.534	0.019	0.164	0.743	0.066	0.021	*	1.013	0.034
16	Tetrachloroethylene	0.108	0.003	0.033	0.006	0.015	0.298	0.037	0.014	*	0.370	0.024
16	Trans–1,2–Dichloroethylene	0.175	0.005	0.056	0.006	0.028	0.366	0.069	0.027	*	0.496	0.039
16	Trans–1,3–Dichloropropylene	0.470	0.013	0.138	0.016	0.076	0.850	0.187	0.075	0.001	1.205	0.107
16	Trichloroethylene	0.137	0.004	0.046	0.006	0.021	0.339	0.053	0.021	*	0.440	0.030
16	Trichlorofluoromethane	0.165	0.005	0.065	0.011	0.023	0.584	0.057	0.021	*	0.696	0.032
16	Vinyl chloride	1.245	0.035	0.378	0.042	0.200	2.345	0.493	0.198	0.002	3.280	0.300
17	Benzene	0.117	6.548	0.386	0.012	2.161	5.786	0.137	0.014	*	8.110	0.076
17	Ethylbenzene	0.189	0.006	0.052	0.008	0.028	0.409	0.116	0.029	0.001	0.591	0.044
17	Styrene	0.175	0.006	0.048	0.007	0.028	0.364	0.069	0.027	*	0.495	0.159
17	Toluene	0.310	0.082	0.270	0.015	0.124	3.068	0.429	0.034	*	3.670	0.121
17	m–Xylene and p–Xylene	0.254	0.008	0.131	0.011	0.042	0.603	0.123	0.034	*	0.813	0.051
17	o–Xylene	0.175	0.006	0.061	0.007	0.028	0.366	0.069	0.027	*	0.497	0.039

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – POLYSAR LTD. – SARNIA

ATG	PARAMETER	IN 2400	PR 0300	PR 0900	PR 1800	CO 0200	CO 0400	CO 0500	OT 1400	BA 1700	TOTAL	@@ CO 1100
18	Acrolein	1.302	0.041	0.291	0.047	0.211	3.417	0.630	0.205	0.002	4.512	0.385
18	Acrylonitrile	0.851	0.020	0.256	0.031	0.132	2.164	0.327	0.130	0.001	2.785	0.194
19	Bis(2–ethylhexyl) phthalate	0.654	0.004	0.005	0.090	0.173	0.319	0.238	–	0.010	0.830	0.134
20	2,6–Dichlorophenol	0.301	0.003	0.003	0.014	0.075	0.166	0.180	–	0.001	0.436	0.101
23	1,2,4–Trichlorobenzene	0.006	*	*	*	*	0.023	0.001	–	*	0.024	0.001
23	2,4,5–Trichlorotoluene	0.002	*	*	*	*	*	*	–	*	*	0.010
23	Hexachlorobenzene	0.000	*	*	*	*	0.001	0.001	–	*	0.002	0.002
23	Hexachlorobutadiene	0.000	*	*	*	0.001	0.001	0.001	–	*	0.003	0.007
23	Hexachloroethane	0.000	*	*	*	0.001	0.005	*	–	*	0.006	0.001
23	Octachlorostyrene	0.000	*	*	*	*	*	*	–	*	*	0.001
23	Pentachlorobenzene	0.000	*	*	*	*	*	*	–	*	*	0.001
25	Oil and grease	577.456	5.117	13.381	47.183	77.407	160.873	263.946	104.058	2.678	656.145	158.672

EXPLANATORY NOTES:
(i) "–" not required by regulation or no conc/flow data available
(ii) "*" loading less than 1 gram/day
(iii) Shading of non–intake data indicates uncertain presence or absence because the lowest analytical response (<WE) that was reported for a significant proportion of the data was greater than 10 times the RMDL.

SAMPLING POINTS:
IN 2400 – Intake Water
PR 0300 – Crumb Separator flows into CO 0200
PR 0900 – Butyl II flows into CO 0400
PR 1800 – Biox Effluent to River
CO 0200 – 72 inch Sewer to River
CO 0400 – 66 inch Sewer to River
CO 0500 – 54 inch Sewer to River
OT 1400 – Turbine Cooling Water to River
BA 1700 – Neutralization Sump to River
@@ CO 1100 – Cole Drain to River draining numerous plant sites – monitored by Polysar – not included in the total loading for the site

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – ROHM AND HAAS CANADA INC. – MORRISBURG

ATG	PARAMETER	RMDL	UNIT	IN 0500	PR 0200	CO 0100
1	COD	10	mg/L	–	87	128
2	Cyanide Total	0.005	mg/L	–	0.005	0.005
3	Hydrogen ion (pH)			–	8.0	7.9
4	Ammonia plus Ammonium	0.25	mg/L	–	0.09	0.44
4	Nitrate+Nitrite	0.25	mg/L	–	0.21	0.28
4	Total Kjeldahl Nitrogen	0.5	mg/L	–	0.7	1.1
5	DOC	0.5	mg/L	0.9	6.4	9.9
5	TOC	5	mg/L	–	–	16
6	Total phosphorus	0.10	mg/L	–	0.11	0.21
7	Specific conductance	500	uS/cm	–	331	438
8	Total suspended solids	5	mg/L	–	4	7
8	Volatile suspended solids	10	mg/L	–	4	4
9	Aluminum	30.0	ug/L	–	28.9	32.1
9	Copper	10.0	ug/L	–	6.3	15.9
9	Zinc	10.0	ug/L	–	6.8	12.8
14	Phenolics (4AAP)	2.0	ug/L	–	5.9	3.8
15	Sulphide	20.0	ug/L	–	30.4	42.3
16	Bromodichloromethane	0.8	ug/L	10.9	3.2	3.7
16	Chloroform	0.7	ug/L	16.8	6.6	17.8
16	Dibromochloromethane	1.1	ug/L	3.7	2.1	1.5
17	Ethylbenzene	0.6	ug/L	0.4	2.4	0.9
17	Toluene	0.5	ug/L	0.4	51.5	85.3
17	m–Xylene and p–Xylene	1.1	ug/L	0.5	8.5	3.0
17	o–Xylene	0.5	ug/L	0.4	6.6	2.7
25	Oil and grease	1.0	mg/L	–	2.1	1.7
98	Ftflow		m3/day	653	351	645

EXPLANATORY NOTES:

(i) "–" no concentration data available or not required by regulation

(ii) The average concentration of a parameter that did not qualify as "found" at a given sampling point is shown in smaller size.

(iii) Average concentration values for parameters in ATGs 1, 3 to 8 and 25 are reported even if the parameter did not qualify as "found" at the site.

SAMPLING POINTS:
IN 0500 – Intake Water to Site
PR 0200 – Oil Additives Process Effluent flows into CO 0100
CO 0100 – Final Outfall to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – ROHM AND HAAS CANADA INC. – MORRISBURG

ATG	PARAMETER	IN 0500	PR 0200	CO 0100	TOTAL
1	COD	–	22.344	88.288	88.288
2	Cyanide Total	–	0.002	0.004	0.004
4	Ammonia plus Ammonium	–	0.031	0.330	0.330
4	Nitrate+Nitrite	–	0.074	0.194	0.194
4	Total Kjeldahl Nitrogen	–	0.236	0.796	0.796
5	DOC	0.615	2.214	6.149	6.149
5	TOC	–	–	9.065	9.065
6	Total phosphorus	–	0.039	0.146	0.146
8	Total suspended solids	–	1.353	4.094	4.094
8	Volatile suspended solids	–	1.200	2.770	2.770
9	Aluminum	–	0.008	0.023	0.023
9	Copper	–	0.002	0.011	0.011
9	Zinc	–	0.002	0.009	0.009
14	Phenolics (4AAP)	–	0.002	0.003	0.003
15	Sulphide	–	0.011	0.031	0.031
16	Bromodichloromethane	0.007	0.001	0.003	0.003
16	Chloroform	0.010	0.002	0.012	0.012
16	Dibromochloromethane	0.002	0.001	0.001	0.001
17	Ethylbenzene	*	0.001	*	*
17	Toluene	*	0.021	0.063	0.063
17	m–Xylene and p–Xylene	*	0.003	0.002	0.002
17	o–Xylene	*	0.002	0.001	0.001
25	Oil and grease	–	0.778	1.213	1.213

EXPLANATORY NOTES:
(i) "–" not required by regulation or no conc/flow data available
(ii) "*" loading less than 1 gram/day

SAMPLING POINTS:
IN 0500 – Intake Water to Site
PR 0200 – Oil Additives Process Effluent flows into CO 0100
CO 0100 – Final Outfall to River

OCM SECTOR TWELVE MONTH REPORT – DATA FROM FEB 1/90 TO JAN 31/91

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES AND TOTAL LOADING PER YEAR
PLANT SITE – ROHM AND HAAS CANADA INC. – SCARBOROUGH

ATG	PARAMETER	RMDL	UNIT	IN 0300	OT 0100	
					AVERAGE CONC PER EVENT	TOTAL LOADING (kg / year)
1	COD	10	mg/L	–	–	–
2	Cyanide Total	0.005	mg/L	–	0.032	0.074
3	Hydrogen ion (pH)			–	8.0	
4	Ammonia plus Ammonium	0.25	mg/L	–	0.19	0.435
4	Nitrate+Nitrite	0.25	mg/L	–	29.05	66.535
4	Total Kjeldahl Nitrogen	0.5	mg/L	–	1.8	4.204
5	DOC	0.5	mg/L	–	16.2	37.072
5	TOC	5	mg/L	–	–	–
6	Total phosphorus	0.10	mg/L	–	0.07	0.156
7	Specific conductance	500	uS/cm	–	618	
8	Total suspended solids	5	mg/L	–	5	10.691
8	Volatile suspended solids	10	mg/L	–	4	8.019
9	Aluminum	30.0	ug/L	–	142.0	0.326
9	Zinc	10.0	ug/L	–	15.5	0.035
14	Phenolics (4AAP)	2.0	ug/L	–	4.2	0.011
25	Oil and grease	1.0	mg/L	–	2.0	4.588
98	Ftflow		m3/day	–	1309	
	Total Discharge Period		hours		42	
	Total Volume Discharged		m3/year		2290	
	Number of Discharge Events				6	

EXPLANATORY NOTES:
(i) "–" no concentration data available or not required by regulation.
(ii) Average concentration values for parameters in ATGs 1, 3 to 8 and 25 are reported even if the parameter did not qualify as "found" at the site.
(iii) The average concentration of a parameter that did not qualify as "found" at a given sampling point is shown in smaller size.

SAMPLING POINTS
IN 0300 – Intake Water to Site
OT 0100 – Sewer to Lake

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – STEPAN CANADA INC. – LONGFORD MILLS

ATG	PARAMETER	RMDL	UNIT	IN 0600	PR 0200	CO 0100
1	COD	10	mg/L	22	150	37
3	Hydrogen ion (pH)				6.8	7.5
4	Ammonia plus Ammonium	0.25	mg/L	0.05	1.43	0.20
4	Nitrate+Nitrite	0.25	mg/L	0.10	0.54	0.17
4	Total Kjeldahl Nitrogen	0.5	mg/L	0.6	4.8	1.0
5	DOC	0.5	mg/L	5.1	36.1	8.6
5	TOC	5	mg/L	12	39	8
6	Total phosphorus	0.10	mg/L	0.13	0.23	0.10
7	Specific conductance	500	uS/cm	187	3035	432
8	Total suspended solids	5	mg/L	1	12	5
8	Volatile suspended solids	10	mg/L	1	9	1
9	Aluminum	30.0	ug/L	37.3	837.7	97.7
9	Boron	50.0	ug/L	33.3	58.0	37.3
9	Copper	10.0	ug/L	3.8	10.0	6.8
9	Nickel	20.0	ug/L	9.5	23.8	14.2
9	Zinc	10.0	ug/L	27.3	46.0	20.5
11	Chromium (hexavalent)	10.0	ug/L	7.0	18.4	5.5
14	Phenolics (4AAP)	2.0	ug/L	5.7	15.6	2.5
15	Sulphide	20.0	ug/L	20.0	30.5	25.3
16	Carbon tetrachloride	1.3	ug/L	0.4	5.1	0.4
16	Chloroform	0.7	ug/L	0.7	7.9	1.4
25	Oil and grease	1.0	mg/L	1.7	11.0	3.6
27	PCBT	0.1	ug/L	0.1	30.0	0.1
98	Ftflow		m3/day	–	140	2440

EXPLANATORY NOTES:

(i) "–" no concentration data available or not required by regulation

(ii) The average concentration of a parameter that did not qualify as "found" at a given sampling point is shown in smaller size.

(iii) Average concentration values for parameters in ATGs 1, 3 to 8 and 25 are reported even if the parameter did not qualify as "found" at the site.

SAMPLING POINTS:
IN 0600 – Intake Water to Site
PR 0200 – Clarifier Effluent flows into CO 0100
CO 0100 – Effluent to Lake

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – STEPAN CANADA INC. – LONGFORD MILLS

ATG	PARAMETER	IN 0600	PR 0200	CO 0100	TOTAL
1	COD	58.930	17.837	97.500	97.500
4	Ammonia plus Ammonium	0.229	0.184	0.539	0.539
4	Nitrate+Nitrite	0.273	0.075	0.406	0.406
4	Total Kjeldahl Nitrogen	1.750	0.629	2.484	2.484
5	DOC	23.737	4.943	21.076	21.076
5	TOC	31.448	5.338	19.494	19.494
6	Total phosphorus	0.098	0.031	0.242	0.242
8	Total suspended solids	3.349	1.645	12.626	12.626
8	Volatile suspended solids	2.965	1.299	3.492	3.492
9	Aluminum	0.125	0.117	0.248	0.248
9	Boron	0.096	0.008	0.095	0.095
9	Copper	0.015	0.001	0.017	0.017
9	Nickel	0.032	0.003	0.035	0.035
9	Zinc	0.080	0.006	0.052	0.052
11	Chromium (hexavalent)	0.019	0.003	0.014	0.014
14	Phenolics (4AAP)	0.016	0.002	0.006	0.006
15	Sulphide	0.053	0.004	0.065	0.065
16	Carbon tetrachloride	0.001	0.001	0.001	0.001
16	Chloroform	0.002	0.001	0.003	0.003
25	Oil and grease	4.640	1.591	8.598	8.598
27	PCBT	*	0.003	*	*

EXPLANATORY NOTES:
(i) "–" not required by regulation or no conc/flow data available
(ii) "*" loading less than 1 gram/day

SAMPLING POINTS:
IN 0600 – Intake Water to Site
CO 0100 – Effluent to Lake
PR 0200 – Clarifier Effluent flows into CO 0100

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – UNIROYAL CHEMICAL LTD. – ELMIRA

ATG	PARAMETER	RMDL	UNIT	IN 1000	CO 0600	CO 0900	OT 0200	CO 1100	CO 0800
1	COD	10	mg/L	9	14	24	–	–	11
3	Hydrogen ion (pH)			7.0	8.0	8.3	7.8	7.9	8.0
4	Ammonia plus Ammonium	0.25	mg/L	0.64	0.11	0.19	0.08	2.56	0.42
4	Nitrate+Nitrite	0.25	mg/L	6.75	1.95	1.69	4.50	5.46	5.15
4	Total Kjeldahl Nitrogen	0.5	mg/L	1.3	0.7	0.8	2.1	2.8	1.1
5	DOC	0.5	mg/L	7.0	5.4	6.1	4.6	10.0	7.3
5	TOC	5	mg/L	9	5	7	3	9	6
6	Total phosphorus	0.10	mg/L	0.91	0.39	0.16	0.10	0.49	0.20
7	Specific conductance	500	uS/cm	594	799	1109	689	1780	1193
8	Total suspended solids	5	mg/L	28	4	11	10	26	12
8	Volatile suspended solids	10	mg/L	8	4	4	–	–	4
9	Aluminum	30.0	ug/L	115.6	9.3	160.5	48.3	41.7	140.1
9	Boron	50.0	ug/L	23.5	40.8	35.8	42.8	69.5	36.0
9	Copper	10.0	ug/L	24.4	5.0	11.0	16.8	10.2	5.8
9	Zinc	10.0	ug/L	156.6	30.5	38.7	10.5	17.8	59.8
12	Mercury	0.10	ug/L	0.11	0.24	0.08	0.07	0.04	0.05
14	Phenolics (4AAP)	2.0	ug/L	69	7.4	9.3	3.4	4.2	7.3
15	Sulphide	20.0	ug/L	21.5	29.5	37.3	–	60.0	44.8
16	Bromodichloromethane	0.8	ug/L	0.8	0.5	0.4	–	0.4	0.5
16	Chloroform	0.7	ug/L	0.8	0.7	1.2	–	0.4	0.6
16	Methylene chloride	1.3	ug/L	0.8	2.9	0.4	–	0.3	0.3
17	Benzene	0.5	ug/L	1.2	0.4	0.4	0.2	0.2	0.4
17	Toluene	0.5	ug/L	0.4	4.7	229.1	0.7	0.4	10.4
19	Bis(2–ethylhexyl) phthalate	2.2	ug/L	1.4	19.0	5.1	–	–	2.0

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE CONCENTRATION VALUES
PLANT SITE – UNIROYAL CHEMICAL LTD. – ELMIRA

ATG	PARAMETER	RMDL	UNIT	IN 1000	CO 0600	CO 0900	OT 0200	CO 1100	CO 0800
24	Total H6CDD	30.0	pg/L	22.0	20.8	81.0	–	22.0	21.6
24	Total H7CDD	30.0	pg/L	17.0	17.0	159.3	–	17.0	17.8
24	Total H7CDF	30.0	pg/L	20.0	20.0	475.0	–	20.0	20.0
24	Total O8CDD	30.0	pg/L	20.0	20.0	132.5	–	20.0	24.7
24	Total O8CDF	30.0	pg/L	22.0	22.0	450.3	–	22.0	22.8
25	Oil and grease	1.0	mg/L	2.9	1.2	2.8	1.7	11.2	1.6
98	Ftflow		m3/day	1393	421	252	721	2192	2390

EXPLANATORY NOTES:
(i) "–" no concentration data available or not required by regulation
(ii) Average concentration values for parameters in ATGs 1, 3–8 and 25 are reported even if the parameter did not qualify as "found" at the site.
(iii) The average concentration of a parameter that did not qualify as "found" at a given sampling point is shown in smaller size.

SAMPLING POINTS
IN 1000 – Intake Water to Site (Municipal or Canagagigue Creek **)
CO 1100 – Shirt Factory Creek upstream of Site
CO 0600 – Outfall #6 to Canagagigue Creek
CO 0800 – Shirt Factory Creek from Site
CO 0900 – Outfall #11 to Canagagigue Creek
OT 0200 – Outfall #2 to Canagagigue Creek

** Canagagigue Creek used for six months of the monitoring period

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – UNIROYAL CHEMICAL LTD. – ELMIRA

ATG	PARAMETER	IN 1000	CO 0600	CO 0900	OT 0200	TOTAL	@@ CO 1100	@@ CO 0800
1	COD	12.680	5.303	6.332	–	11.635	–	16.524
4	Ammonia plus Ammonium	0.748	0.016	0.047	0.062	0.125	1.467	0.564
4	Nitrate+Nitrite	9.411	0.551	0.402	3.036	3.989	12.583	11.713
4	Total Kjeldahl Nitrogen	1.857	0.227	0.234	0.507	0.968	3.038	2.199
5	DOC	9.783	2.212	1.725	2.301	6.238	16.313	14.677
5	TOC	12.599	0.167	1.522	4.126	5.815	24.016	21.059
6	Total phosphorus	1.268	0.271	0.049	0.089	0.409	0.401	0.349
8	Total suspended solids	40.126	1.469	2.853	7.949	12.271	44.637	32.173
8	Volatile suspended solids	4.877	1.849	1.017	–	2.866	–	4.682
9	Aluminum	0.239	0.003	0.064	0.057	0.124	0.085	0.363
9	Boron	0.032	0.014	0.009	0.031	0.054	0.090	0.077
9	Copper	0.034	0.002	0.003	0.027	0.032	0.018	0.013
9	Zinc	0.218	0.003	0.011	0.009	0.023	0.029	0.231
12	Mercury	*	*	*	*	*	*	*
14	Phenolics (4AAP)	0.001	0.001	0.002	0.003	0.006	0.004	0.013
15	Sulphide	0.034	0.010	0.010	–	0.02	0.150	0.059
16	Bromodichloromethane	0.001	*	*	–	*	0.001	0.001
16	Chloroform	0.001	*	*	–	*	0.001	0.001
16	Methylene chloride	*	0.002	*	–	0.002	0.001	0.001
17	Benzene	0.002	*	*	*	*	*	0.001
17	Toluene	0.001	0.001	0.042	*	0.043	0.001	0.028
19	Bis(2–ethylhexyl) phthalate	0.002	0.001	0.002	–	0.003	–	0.003

OCM SECTOR TWELVE MONTH REPORT – DATA FROM OCT 01/89 TO SEPT 30/90

PARAMETERS FOUND AT EACH SAMPLING POINT
TWELVE MONTH AVERAGE LOADING VALUES (kg/day)
PLANT SITE – UNIROYAL CHEMICAL LTD. – ELMIRA

ATG	PARAMETER	IN 1000	CO 0600	CO 0900	OT 0200	TOTAL	CO 1100 @@	CO 0800 @@
24	Total H6CDD	*	*	*	–	*	*	*
24	Total H7CDD	*	*	*	–	*	*	*
24	Total H7CDF	*	*	*	–	*	*	*
24	Total O8CDD	*	*	*	–	*	*	*
24	Total O8CDF	*	*	*	–	*	*	*
25	Oil and grease	4.063	0.457	0.973	1.087	2.517	10.338	3.718

EXPLANATORY NOTES:
(i) "–" not required by regulation or no conc/flow data available
(ii) "*" loading less than 1 gram/day

SAMPLING POINTS:
IN 1000 – Intake Water to Site (Municipal or Canagagigue Creek **)
CO 1100 – Shirt Factory Creek upstream of Site
CO 0600 – Outfall #6 to Canagagigue Creek
CO 0900 – Outfall #11 to Canagagigue Creek
OT 0200 – Outfall #2 to Canagagigue Creek
CO 0800 – Shirt Factory Creek from Site

** Canagagigue Creek used for six months of the monitoring period
@@ CO 0800 and CO 1100 – not included in the total loading for the site

APPENDIX F

STORM WATER EFFLUENT MONITORING SUMMARY

PAGE

AKZO F-2
AMOCO F-3
CELANESE F-4
CHINOOK F-5
DUPONT (MAITLAND) F-6
DUPONT (WHITBY) F-8
ETHYL F-9
GE PLASTICS F-13
NOVACOR F-15
POLYSAR LTD F-17
ROHM & HAAS (MORRISBURG) F-21
UNIROYAL CHEMICAL F-23

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
STORM WATER EFFLUENT MONITORING SUMMARY
PLANT SITE – AKZO CHEMICAL LTD. – SARNIA CONTROL POINT – ST 0300 Reactor Building Storm Water to Cole Drain

				CONCENTRATION SUMMARY					LOADING SUMMARY (kg/event)			APPROX. LOADING	APPROX. LOADING
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX	(kg/event)	* (kg/year)
3	Hydrogen ion (pH)			11	11	6.7	7.8	7.4	10	–	–	–	–
4	Ammonia plus Ammonium	0.25	mg/L	11	11	0.7	2.4	1.4	10	0.067	2.6	1.2	55
4	Nitrate+Nitrite	0.25	mg/L	11	11	0.4	1.5	1.1	10	0.037	2.1	0.99	45
4	Total Kjeldahl nitrogen	0.5	mg/L	11	11	1	4	2	10	0.099	4.3	2.1	93
5	DOC	1.0	mg/L	11	11	3	8	5	10	0.23	12	4.9	220
5	TOC	5.0	mg/L	6	4	3	38	11	5	2.8	92	24	1100
6	Total phosphorus	0.10	mg/L	11	0	0.1	0.1	0.1	10	0.009	0.24	0.089	4
7	Specific conductance	500.0	uS/cm	11	5	252	1250	524	10	–	–	–	–
8	Total suspended solids	5.0	mg/L	11	8	5	99	23	10	0.45	240	36	1600
9	Aluminum	30.0	ug/L	11	9	30	610	182	10	0.005	1.5	0.26	12
9	Copper	10.0	ug/L	11	10	10	110	35	10	0.003	0.072	0.03	1.4
9	Zinc	10.0	ug/L	11	11	280	5560	2942	10	0.025	9.3	3.4	150
14	Phenolics (4AAP)	2.0	ug/L	11	6	1	6	3	10	–	0.013	0.004	0.18
25	Oil and grease	1.0	mg/L	11	7	1	27	7	10	0.091	65	10	460
98	Volume Discharged–Total		m3	10	10	91	2,410	885	10	–	–	–	–

* APPROX. LOADING (kg/year) = 45 Storm Events (>5mm of rainfall/24hr period) multiplied by the APPROX. LOADING (kg/event).

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
STORM WATER EFFLUENT MONITORING SUMMARY
PLANT SITE – AMOCO CANADA RESOURCES LTD. – SARNIA CONTROL POINT – ST 0400 West Storm Drain to River

				CONCENTRATION SUMMARY					LOADING SUMMARY (kg/event)			APPROX. LOADING	APPROX. LOADING
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX	(kg/event)	* (kg/year)
3	Hydrogen ion (pH)			10	10	7.5	8.4	8.0	10	–	–	–	–
4	Ammonia plus Ammonium	0.25	mg/L	10	4	0.06	0.66	0.26	10	0.002	0.66	0.18	10
4	Nitrate+Nitrite	0.25	mg/L	10	10	0.8	5.4	1.8	10	0.032	1.7	0.85	47
4	Total Kjeldahl nitrogen	0.5	mg/L	10	10	0.8	6.1	2.3	10	0.029	11	1.8	99
5	DOC	1.0	mg/L	10	10	5.1	13.6	7.9	10	0.14	11	4.4	240
5	TOC	5.0	mg/L	10	10	5.4	30.0	15.0	10	0.3	21	7.2	400
6	Total phosphorus	0.10	mg/L	10	8	0.07	2.70	0.55	10	0.004	4.7	0.62	35
7	Specific conductance	500.0	uS/cm	10	10	690	18000	4286	10	–	–	–	–
8	Total suspended solids	5.0	mg/L	10	10	50	4000	839	10	0.68	6900	1000	58000
9	Aluminum	30.0	ug/L	10	10	1900	52000	15017	10	0.056	90	16	890
9	Boron	50.0	ug/L	10	6	5	122	56	10	0.001	0.097	0.032	1.8
9	Copper	10.0	ug/L	10	5	5	110	24	10	**	0.19	0.027	1.5
9	Zinc	10.0	ug/L	10	10	40	600	166	10	0.001	1	0.17	9.6
14	Phenolics (4AAP)	2.0	ug/L	10	6	0.5	48.0	10.2	10	**	0.013	0.005	0.28
25	Oil and grease	1.0	mg/L	10	7	0.9	3.8	1.9	10	0.018	3.4	1.1	62
98	Volume Discharged–Total		m3	10	10	10	1,724	656	10	–	–	–	–

* APPROX. LOADING (kg/year) = 56 Storm Events (>5mm of rainfall/24hr period) multiplied by the APPROX. LOADING (kg/event).
** Loading less than 0.001 kg/event or less than 0.001 kg/year

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
STORM WATER EFFLUENT MONITORING SUMMARY
PLANT SITE – CELANESE CANADA INC. – MILLHAVEN CONTROL POINT – ST 0700 East Storm Ditch to CO 0300

				CONCENTRATION SUMMARY					LOADING SUMMARY (kg/event)			APPROX. LOADING	APPROX. LOADING
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX	(kg/event)	* (kg/year)
3	Hydrogen ion (pH)			11	11	7.5	8.1	7.8	9	–	–	–	–
5	DOC	1.0	mg/L	11	11	5	19	11	9	0.59	81	34	980
5	TOC	5.0	mg/L	11	10	5	21	14	9	0.7	110	41	1200
6	Total phosphorus	0.10	mg/L	11	10	0.09	0.31	0.17	8	0.028	1	0.47	14
7	Specific conductance	500.0	uS/cm	11	3	145	1185	472	9	–	–	–	–
8	Total suspended solids	5.0	mg/L	11	11	18	315	120	9	0.59	1200	250	7400
9	Aluminum	30.0	ug/L	12	10	3	11500	4527	9	0.013	25	10	290
9	Copper	10.0	ug/L	12	8	4	240	33	9	0.005	2.2	0.28	8.1
9	Zinc	10.0	ug/L	12	12	19	116	59	9	0.003	0.71	0.21	6
10	Antimony	5.0	ug/L	11	8	1	44	13	8	0.001	0.15	0.042	1.2
11	Chromium (hexavalent)	10.0	ug/L	10	10	14	490	153	7	0.002	2.1	0.62	18
25	Oil and grease	1.0	mg/L	11	7	1	8	3	7	0.65	44	12	350
98	Volume Discharged–Total		m3	10	10	33	9,086	3,583	10	–	–	–	–

* APPROX. LOADING (kg/year) = 29 Storm Events (>5mm of rainfall/24hr period) multiplied by the APPROX. LOADING (kg/event).
CO 0300 – East Outfall to Lake

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
STORM WATER EFFLUENT MONITORING SUMMARY
PLANT SITE – CHINOOK GROUP LTD. – SOMBRA CONTROL POINT – ST 0200 Storm Sump Effluent to River

				CONCENTRATION SUMMARY					LOADING SUMMARY (kg/event)			APPROX. LOADING	APPROX. LOADING
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX	(kg/event)	* (kg/year)
3	Hydrogen ion (pH)			7	7	7.1	7.9	7.5	7	–	–	–	–
4	Ammonia plus Ammonium	0.25	mg/L	7	4	0.03	18.40	4.53	7	0.021	1	0.38	3.4
4	Nitrate+Nitrite	0.25	mg/L	7	5	0.03	2.79	1.22	7	0.001	2.1	0.69	6.2
4	Total Kjeldahl nitrogen	0.5	mg/L	7	7	2	112	28	7	0.3	13	3.7	34
5	DOC	1.0	mg/L	7	7	9	352	102	7	2.4	50	20	180
6	Total phosphorus	0.10	mg/L	7	6	0.10	1.97	0.78	7	0.023	4.8	0.75	6.7
7	Specific conductance	500.0	uS/cm	7	5	168	2060	873	7	–	–	–	–
8	Total suspended solids	5.0	mg/L	7	7	25	245	124	7	3.6	260	55	490
9	Aluminum	30.0	ug/L	7	7	1210	25000	9686	7	0.073	42	7.2	65
9	Boron	50.0	ug/L	7	4	32	116	58	7	0.001	0.19	0.037	0.33
9	Copper	10.0	ug/L	7	3	8	16	10	7	**	0.029	0.006	0.054
9	Nickel	20.0	ug/L	7	3	6	91	28	7	**	0.034	0.009	0.081
9	Zinc	10.0	ug/L	7	6	9	324	124	7	0.002	0.16	0.04	0.36
25	Oil and grease	1.0	mg/L	7	5	1	14	3	7	0.04	9.5	1.8	16
98	Volume Discharged–Total		m3	7	7	18	2,423	556	7	–	–	–	–

* APPROX. LOADING (kg/year) = 9 Storm Events (>5mm of rainfall/24hr period) multiplied by the APPROX. LOADING (kg/event).
** Loading less than 0.001 kg/event or less than 0.001 kg/year

Note : ST 0200 flow was diverted to the process sewer (CO 0100) part way through the monitoring period.
The impact of subsequent storm events would be reflected in the data for CO 0100.

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT

STORM WATER EFFLUENT MONITORING SUMMARY

PLANT SITE – DU PONT CANADA – MAITLAND CONTROL POINT – ST 0800 East Ditch to River

				CONCENTRATION SUMMARY					LOADING SUMMARY (kg/event)			APPROX. LOADING (kg/event)	APPROX. LOADING * (kg/year)
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX		
3	Hydrogen ion (pH)			13	13	7.6	8.2	8.0	13	–	–	–	–
5	DOC	1.0	mg/L	13	13	3	10	6	13	0.72	9.3	2.3	96
5	TOC	5.0	mg/L	9	6	3	11	6	9	0.72	11	3.6	150
6	Total phosphorus	0.100	mg/L	13	–	0.1	0.1	0.1	13	0.01	0.19	0.049	2
7	Specific conductance	500.0	uS/cm	13	13	516	1610	873	13	–	–	–	–
8	Total suspended solids	5.0	mg/L	12	9	5	80	18	12	0.7	80	10	430
9	Aluminum	30.0	ug/L	13	13	70	1630	495	13	0.015	1.6	0.3	12
9	Boron	50.0	ug/L	13	4	50	220	80	13	0.007	0.093	0.031	1.3
9	Copper	10.0	ug/L	13	9	10	40	20	13	0.003	0.02	0.008	0.33
9	Zinc	10.0	ug/L	13	12	10	70	42	13	0.002	0.074	0.021	0.86
10	Antimony	5.0	ug/L	13	12	4	250	45	13	0.002	0.05	0.015	0.62
16	1,1,2,2–Tetrachloroethane	4.3	ug/L	13	0	1	250	84	13	**	0.25	0.045	1.8
16	1,1,2–Trichloroethane	0.6	ug/L	13	0	0.2	50.0	16.8	13	**	0.05	0.009	0.37
16	1,1–Dichloroethane	0.8	ug/L	13	9	0.2	50.0	16.8	13	**	0.05	0.009	0.37
16	1,1–Dichloroethylene	2.8	ug/L	13	0	0.5	125.0	41.9	13	**	0.13	0.023	0.94
16	1,2–Dichlorobenzene	1.4	ug/L	13	9	0.2	50.0	16.8	13	**	0.05	0.009	0.37
16	1,2–Dichloroethane	0.8	ug/L	13	12	0.2	50.0	19.4	13	**	0.05	0.011	0.45
16	1,2–Dichloropropane	0.9	ug/L	13	9	0.2	50.0	16.8	13	**	0.05	0.009	0.37
16	1,3–Dichlorobenzene	1.1	ug/L	13	9	0.2	50.0	16.8	13	**	0.05	0.009	0.37
16	1,4–Dichlorobenzene	1.7	ug/L	13	9	0.2	50.0	16.8	13	**	0.05	0.009	0.37
16	Bromodichloromethane	0.8	ug/L	13	11	0.2	50.0	18.9	13	**	0.05	0.009	0.37
16	Bromoform	3.7	ug/L	13	9	2	500	168	13	**	0.5	0.09	3.7
16	Bromomethane	3.7	ug/L	13	8	2	500	166	13	**	0.5	0.09	3.7
16	Carbon tetrachloride	1.3	ug/L	13	13	198	1920	847	13	0.028	1.9	0.46	19
16	Chlorobenzene	0.7	ug/L	13	9	0.2	50.0	16.8	13	**	0.05	0.009	0.37
16	Chloroform	0.7	ug/L	13	13	50	1030	371	13	0.005	1.9	0.28	12
16	Chloromethane	3.7	ug/L	13	9	2	500	166	13	**	0.5	0.09	3.7
16	Cis–1,3–Dichloropropylene	1.4	ug/L	13	9	0.5	125.0	41.9	13	**	0.13	0.023	0.94
16	Dibromochloromethane	1.1	ug/L	13	9	1	250	84	13	**	0.25	0.045	1.8
16	Ethylene dibromide	1.0	ug/L	13	12	1	320	140	13	**	0.59	0.1	4.3
16	Methylene chloride	1.3	ug/L	13	13	25	273	116	13	0.005	0.34	0.07	2.9
16	Tetrachloroethylene	1.1	ug/L	13	13	50	381	202	13	0.005	0.52	0.12	4.9
16	Trans–1,2–Dichloroethylene	1.4	ug/L	13	9	0.2	50.0	16.8	13	**	0.05	0.009	0.37
16	Trans–1,3–Dichloropropylene	1.4	ug/L	13	0	0.5	125.0	41.9	13	**	0.13	0.023	0.94
16	Trichloroethylene	1.9	ug/L	13	9	0.2	50.0	17.0	13	**	0.05	0.009	0.37
16	Trichlorofluoromethane	1.0	ug/L	13	13	157	1770	521	13	0.017	0.7	0.21	8.7
16	Vinyl chloride	4.0	ug/L	13	8	2	500	154	13	**	0.5	0.09	3.7
25	Oil and grease	1.0	mg/L	13	5	1	10	2	13	0.1	10	1.3	51
98	Volume Discharged–Total		m3	13	13	100	1,850	490	13	–	–	–	–

* APPROX. LOADING (kg/year) = 41 Storm Events (>5mm of rainfall/24hr period) multiplied by the APPROX. LOADING (kg/event).

** Loading less than 0.001 kg/event or less than 0.001 kg/year

Shading of data indicates uncertain presence or absence because the lowest analytical response (<WE) that was reported for a significant proportion of the data was greater than 10 times the RMDL.

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
STORM WATER EFFLUENT MONITORING SUMMARY
PLANT SITE – DU PONT CANADA INC. – MAITLAND CONTROL POINT – ST 0900 South Smades Creek to River

				CONCENTRATION SUMMARY					LOADING SUMMARY (kg/event)			APPROX. LOADING	APPROX. LOADING
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX	(kg/event)	* (kg/year)
3	Hydrogen ion (pH)			13	13	7.4	8.5	7.8	12	–	–	–	–
4	Ammonia plus Ammonium	0.25	mg/L	13	13	6	61	29	12	0.22	75	19	780
4	Nitrate+Nitrite	0.25	mg/L	12	11	0.1	11.2	4.4	11	0.02	30	3.6	150
4	Total Kjeldahl nitrogen	0.5	mg/L	13	13	9	74	37	12	0.31	77	22	900
5	DOC	1.0	mg/L	13	13	11	75	35	12	0.36	120	23	960
5	TOC	5.0	mg/L	12	12	11	81	40	11	0.36	68	18	750
6	Total phosphorus	0.10	mg/L	13	13	2	43	15	12	0.058	31	9.7	400
7	Specific conductance	500.0	uS/cm	13	12	402	1640	1035	12	–	–	–	–
8	Total suspended solids	5.0	mg/L	13	13	12	278	90	12	0.53	260	55	2200
9	Aluminum	30.0	ug/L	13	13	260	8,000	2,112	12	0.011	7.5	1.3	53
9	Boron	50.0	ug/L	13	13	5,200	202,000	77,477	12	0.18	130	44	1800
9	Nickel	20.0	ug/L	13	4	10	30	20	12	**	0.053	0.013	0.53
9	Zinc	10.0	ug/L	13	8	10	50	23	12	0.001	0.053	0.014	0.57
10	Arsenic	5.0	ug/L	13	9	2	18	9	12	**	0.021	0.006	0.25
14	Phenolics (4AAP)	2.0	ug/L	13	9	1	10	3	12	**	0.008	0.002	0.082
25	Oil and grease	1.0	mg/L	13	10	1	10	4	12	0.034	9.4	2.9	120
98	Volume Discharged–Total		m3	12	12	34	5,300	825	12	–	–	–	–

* APPROX. LOADING (kg/year) = 41 Storm Events (>5mm of rainfall/24hr period) multiplied by the APPROX. LOADING (kg/event).
** Loading less than 0.001 kg/event or less than 0.001 kg/year

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
STORM WATER EFFLUENT MONITORING SUMMARY
PLANT SITE – DU PONT CANADA INC. – WHITBY CONTROL POINT – ST 0100 Vexar Line Effluent to Lake

				CONCENTRATION SUMMARY					LOADING SUMMARY (kg/event)			APPROX. LOADING (kg/event)	APPROX. LOADING * (kg/year)
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX		
3	Hydrogen ion (pH)			14	14	7.2	8.0	7.8					
5	DOC	1.0	mg/L	14	14	2	10	4					
5	TOC	5.0	mg/L	14	4	2	10	5					
6	Total phosphorus	0.10	mg/L	14	1	0.1	0.2	0.1					
7	Specific conductance	500.0	uS/cm	14	0	71	381	200					
8	Total suspended solids	5.0	mg/L	14	3	1	12	3					
9	Aluminum	30.0	ug/L	14	14	40	430	103					
9	Zinc	10.0	ug/L	13	8	10	80	24					
25	Oil and grease	1.0	mg/L	14	9	1	148	13					

NOTE: No flow data was provided therefore no loading calculations possible
* APPROX. LOADING (kg/year) = 32 Storm Events (>5mm of rainfall/24hr period) multiplied by the APPROX. LOADING (kg/event).

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
STORM WATER EFFLUENT MONITORING SUMMARY
PLANT SITE – ETHYL CANADA INC. – CORUNNA CONTROL POINT – ST 0400 Northeast Ditch to CO 0100

				CONCENTRATION SUMMARY					LOADING SUMMARY (kg/event)			APPROX. LOADING (kg/event)	APPROX. LOADING * (kg/year)
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX		
3	Hydrogen ion (pH)			13	13	6.9	. 9.6	8.1	12	–	–	–	–
5	DOC	1.0	mg/L	11	11	5	14	8	10	0.041	0.59	0.28	14
5	TOC	5.0	mg/L	7	7	6	10	9	6	0.064	0.74	0.42	22
6	Total phosphorus	0.10	mg/L	12	4	0.1	0.2	0.1	11	0.001	0.018	0.006	0.31
7	Specific conductance	500.0	uS/cm	13	8	351	1953	759	12	–	–	–	–
8	Total suspended solids	5.0	mg/L	12	10	4	140	64	11	0.059	11	2.9	150
9	Aluminum	30.0	ug/L	12	12	110	4600	2029	11	0.002	0.37	0.096	5
9	Boron	50.0	ug/L	12	8	30	90	55	11	**	0.005	0.002	0.1
9	Copper	10.0	ug/L	12	8	3	18	10	11	**	0.001	**	**
9	Lead	30.0	ug/L	12	11	10	440	247	11	**	0.032	0.011	0.57
9	Zinc	10.0	ug/L	12	10	4	150	65	11	**	0.01	0.003	0.16
13	Tri–alkyl lead (Total)	2.0	ug/L	6	5	2	37	13	6	**	0.002	**	**
14	Phenolics (4AAP)	2.0	ug/L	12	11	1	180	28	11	**	0.003	0.001	0.052
25	Oil and grease	1.0	mg/L	12	10	1	8	3	11	0.012	0.38	0.12	6.2
98	Volume Discharged–Total		m3	12	12	2	116	43	12	–	–	–	–

* APPROX. LOADING (kg/year) = 52 Storm Events (>5mm of rainfall/24hr period) multiplied by the APPROX. LOADING (kg/event).
** Loading less than 0.001 kg/event or less than 0.001 kg/year
CO 0100 – Final Effluent to River

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
STORM WATER EFFLUENT MONITORING SUMMARY
PLANT SITE – ETHYL CANADA INC. – CORUNNA CONTROL POINT – ST 0500 Southwest Ditch to CO 0100

				CONCENTRATION SUMMARY					LOADING SUMMARY (kg/event)			APPROX. LOADING	APPROX. LOADING
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX	(kg/event)	* (kg/year)
3	Hydrogen ion (pH)			13	13	7.6	8.4	7.9	12	–	–	–	–
5	DOC	1.0	mg/L	11	11	4	11	7	10	0.043	0.62	0.28	15
5	TOC	5.0	mg/L	10	10	5	13	9	9	0.048	0.68	0.38	20
6	Total phosphorus	0.10	mg/L	12	6	0.1	0.5	0.2	11	**	0.045	0.01	0.52
7	Specific conductance	500.0	uS/cm	13	5	238	1274	539	12	–	–	–	–
8	Total suspended solids	5.0	mg/L	12	11	4	240	92	11	0.099	22	5.4	280
9	Aluminum	30.0	ug/L	12	12	94	19000	4241	11	0.004	1.8	0.28	15
9	Boron	50.0	ug/L	12	4	19	60	42	11	**	0.005	0.002	0.1
9	Lead	30.0	ug/L	12	12	34	460	154	11	**	0.043	0.01	0.52
9	Zinc	10.0	ug/L	12	11	10	220	86	11	**	0.02	0.005	0.26
12	Mercury	0.10	ug/L	12	7	0.02	10.00	1.20	11	**	0.001	**	**
13	Tri–alkyl lead (Total)	2.0	ug/L	7	5	0.5	28.2	11.2	7	**	0.002	0.001	0.052
14	Phenolics (4AAP)	2.0	ug/L	12	8	0.3	17.0	5.5	11	**	0.001	**	**
25	Oil and grease	1.0	mg/L	12	10	1	4	2	11	0.01	0.17	0.085	4.4
98	Volume Discharged–Total		m3	12	12	5	93	47	12	–	–	–	–

* APPROX. LOADING (kg/year) = 52 Storm Events (>5mm of rainfall/24hr period) multiplied by the APPROX. LOADING (kg/event).
** Loading less than 0.001 kg/event or less than 0.001 kg/year
CO 0100 – Final Effluent to River

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
STORM WATER EFFLUENT MONITORING SUMMARY
PLANT SITE – ETHYL CANADA INC. – CORUNNA CONTROL POINT – ST 0600 Northwest Ditch to CO 0100

				CONCENTRATION SUMMARY					LOADING SUMMARY (kg/event)			APPROX. LOADING	APPROX. LOADING
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX	(kg/event)	* (kg/year)
3	Hydrogen ion (pH)			13	13	7.6	8.5	7.9	12	–	–	–	–
5	DOC	1.000	mg/L	11	11	3	8	5	10	0.003	4.2	0.57	29
5	TOC	5.000	mg/L	8	5	3	8	6	7	0.004	4.3	0.8	42
6	Total phosphorus	0.100	mg/L	12	2	0.1	0.1	0.1	11	**	0.11	0.014	0.73
7	Specific conductance	500.000	uS/cm	13	5	190	2000	532	12	–	–	–	–
8	Total suspended solids	5.000	mg/L	12	11	4	150	55	11	0.075	50	6.7	350
9	Aluminum	30.000	ug/L	12	12	260	3000	1320	11	0.001	3.8	0.39	20
9	Boron	50.000	ug/L	12	9	40	940	184	11	**	0.097	0.02	1
9	Copper	10.000	ug/L	12	5	5	36	15	11	**	0.01	0.002	0.1
9	Lead	30.000	ug/L	12	12	1000	18000	5883	11	0.005	1.9	0.44	23
9	Zinc	10.000	ug/L	12	11	4	360	138	11	**	0.036	0.01	0.52
10	Antimony	5.000	ug/L	12	4	3	19	6	11	**	0.004	0.001	0.052
12	Mercury	0.100	ug/L	12	8	0.02	20.0	1.9	11	**	**	**	**
13	Tetra–alkyl lead (Total)	2.000	ug/L	11	7	0.5	87	14	11	**	0.006	0.001	0.052
13	Tri–alkyl lead (Total)	2.000	ug/L	11	11	15	942	140	11	**	0.067	0.01	0.52
14	Phenolics (4AAP)	2.000	ug/L	12	9	0.3	140	15.5	11	**	0.014	0.002	0.1
16	1,1,2–Trichloroethane	0.600	ug/L	10	6	0.6	16	5.3	9	**	0.007	0.001	0.052
16	1,1–Dichloroethane	0.800	ug/L	10	4	0.5	5.1	2.3	9	**	0.006	0.001	0.052
16	1,1–Dichloroethylene	2.800	ug/L	10	4	0.4	29	4.6	9	**	0.008	0.001	0.052
16	1,2–Dichlorobenzene	1.400	ug/L	10	4	0.4	4.0	1.8	9	**	0.005	0.001	0.052
16	1,2–Dichloroethane	0.800	ug/L	11	11	4.0	590	200	10	**	0.62	0.07	3.6
16	1,2–Dichloropropane	0.900	ug/L	10	4	0.5	5.4	2.4	9	**	0.007	0.001	0.052
16	1,3–Dichlorobenzene	1.100	ug/L	10	4	0.3	3.3	1.5	9	**	0.004	0.001	0.052
16	1,4–Dichlorobenzene	1.700	ug/L	10	4	0.2	2.4	1.0	9	**	0.003	**	**
16	Bromodichloromethane	0.800	ug/L	10	4	0.4	4.0	1.8	9	**	0.005	0.001	0.052
16	Bromomethane	3.700	ug/L	10	4	2.4	24	11	9	**	0.031	0.004	0.21
16	Carbon tetrachloride	1.300	ug/L	10	4	0.3	3.0	1.4	9	**	0.004	**	**
16	Chlorobenzene	0.700	ug/L	10	4	0.6	6.0	2.8	9	**	0.008	0.001	0.052
16	Chloroform	0.700	ug/L	10	4	0.4	36	5.0	9	**	0.005	0.001	0.052
16	Chloromethane	3.700	ug/L	10	4	2.3	39	12	9	**	0.029	0.004	0.21
16	Cis–1,3–Dichloropropylene	1.400	ug/L	10	4	0.7	7.0	3.2	9	**	0.009	0.001	0.052

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
STORM WATER EFFLUENT MONITORING SUMMARY
PLANT SITE – ETHYL CANADA INC. – CORUNNA CONTROL POINT – ST 0600 Northwest Ditch to CO 0100

				CONCENTRATION SUMMARY					LOADING SUMMARY (kg/event)			APPROX. LOADING	APPROX. LOADING
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX	(kg/event)	* (kg/year)
16	Dibromochloromethane	1.100	ug/L	10	4	0.4	4.2	1.9	9	**	0.005	0.001	0.052
16	Ethylene dibromide	1.000	ug/L	11	11	6	500	188	10	**	0.066	0.015	0.78
16	Methylene chloride	1.300	ug/L	10	5	0.3	40	15	9	**	0.041	0.005	0.26
16	Tetrachloroethylene	1.100	ug/L	10	4	0.2	31	3.9	9	**	0.039	0.004	0.21
16	Trans–1,2–Dichloroethylene	1.400	ug/L	10	4	0.4	4.2	1.9	9	**	0.005	0.001	0.052
16	Trans–1,3–Dichloropropylene	1.400	ug/L	10	4	1.1	11	5.1	9	**	0.014	0.002	0.1
16	Trichloroethylene	1.900	ug/L	10	4	0.3	11	2.2	9	**	0.014	0.002	0.1
16	Trichlorofluoromethane	1.000	ug/L	10	4	0.3	3.6	1.4	9	**	0.004	**	**
16	Vinyl chloride	4.000	ug/L	10	4	2.9	29	13	9	**	0.037	0.005	0.26
17	Benzene	0.500	ug/L	10	6	0.2	26	7.8	9	**	0.011	0.002	0.1
17	Ethylbenzene	0.600	ug/L	10	5	0.4	4.0	1.8	9	**	0.005	0.001	0.052
17	Styrene	0.500	ug/L	10	4	0.4	4.0	1.8	9	**	0.005	0.001	0.052
17	Toluene	0.500	ug/L	10	7	0.4	38	14	9	**	0.005	0.002	0.1
17	m–Xylene and p–Xylene	1.100	ug/L	10	5	0.5	8.7	3.0	9	**	0.006	0.001	0.052
17	o–Xylene	0.500	ug/L	10	5	0.4	4.8	2.3	9	**	0.005	0.001	0.052
25	Oil and grease	1.000	mg/L	12	12	2	6	3	11	0.002	2.2	0.31	16
98	Volume Discharged–Total	–	m3	12	12	1	1271	152	12	–	–	–	–

* APPROX. LOADING (kg/year) = 52 Storm Events (>5mm of rainfall/24hr period) multiplied by the APPROX. LOADING (kg/event).
** Loading less than 0.001 kg/event or less than 0.001 kg/year
CO 0100 – Final Effluent to River

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
STORM WATER EFFLUENT MONITORING SUMMARY
PLANT SITE – GE PLASTICS CANADA LTD. – COBOURG CONTROL POINT – ST 0200 Storm Water North to Lake

				CONCENTRATION SUMMARY					LOADING SUMMARY (kg/event)			APPROX. LOADING	APPROX. LOADING
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX	(kg/event)	* (kg/year)
2	Cyanide Total	0.005	mg/L	11	9	0.001	0.440	0.077	11	**	0.059	0.011	0.44
3	Hydrogen ion (pH)			11	11	6.9	8.6	7.5	11	–	–	–	–
5	DOC	1.0	mg/L	11	8	1	25	7	11	0.06	3.6	0.74	30
5	TOC	5.0	mg/L	5	2	3	9	5	5	0.32	0.83	0.61	24
6	Total phosphorus	0.10	mg/L	11	6	0.01	0.39	0.14	11	0.001	0.086	0.022	0.88
7	Specific conductance	500.0	uS/cm	11	1	117	1720	430	11	–	–	–	–
8	Total suspended solids	5.0	mg/L	11	4	1	209	27	11	0.13	69	7.3	290
9	Aluminum	30.0	ug/L	11	11	32	2200	509	11	0.004	0.73	0.11	4.2
9	Zinc	10.0	ug/L	11	10	4	640	205	11	**	0.15	0.029	1.2
10	Antimony	5.0	ug/L	11	11	6	270	58	11	0.001	0.089	0.012	0.48
12	Mercury	0.1	ug/L	11	4	0.02	11.0	1.1	11	**	0.004	**	**
14	Phenolics (4AAP)	2.0	ug/L	11	7	1	110	19	11	**	0.008	0.002	0.08
18	Acrylonitrile	4.2	ug/L	11	4	2	22	5	11	**	0.004	0.001	0.04
25	Oil and grease	1.0	mg/L	11	8	1	47	7	11	0.069	16	1.6	66
98	Volume Discharged–Total		m3	70	70	4	331	91	70	–	–	–	–

* APPROX. LOADING (kg/year) = 40 Storm Events (>5mm of rainfall/24hr period) multiplied by the APPROX. LOADING (kg/event).
** Loading less than 0.001 kg/event or less than 0.001 kg/year

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
STORM WATER EFFLUENT MONITORING SUMMARY
PLANT SITE – GE PLASTICS LTD. – COBOURG CONTROL POINT – ST 0300 Storm Water South to Lake

				CONCENTRATION SUMMARY					LOADING SUMMARY (kg/event)			APPROX. LOADING	APPROX. LOADING
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX	(kg/event)	* (kg/year)
2	Cyanide Total	0.005	mg/L	10	5	0.002	0.013	0.006	10	**	0.001	**	**
3	Hydrogen ion (pH)			10	10	6.9	8.2	7.5	10	–	–	–	–
5	DOC	1.0	mg/L	10	9	1	14	7	10	0.032	0.4	0.21	8.4
5	TOC	5.0	mg/L	8	6	2	18	8	8	0.094	0.53	0.26	11
6	Total phosphorus	0.10	mg/L	10	7	0.01	0.55	0.18	10	**	0.03	0.007	0.28
7	Specific conductance	500.0	uS/cm	10	6	85	1850	609	10	–	–	–	–
8	Total suspended solids	5.0	mg/L	10	10	5	180	76	10	0.094	15	3.6	150
9	Aluminum	30.0	ug/L	10	10	32	4600	1401	10	0.001	0.18	0.052	2.1
9	Cadmium	2.0	ug/L	10	7	1	30	9	10	**	0.003	**	**
9	Zinc	10.0	ug/L	10	9	4	5600	1156	10	**	0.09	0.03	1.2
10	Antimony	5.0	ug/L	10	10	9	220	85	10	**	0.023	0.004	0.16
12	Mercury	0.1	ug/L	9	4	0.02	7.2	2.3	9	**	0.001	**	**
14	Phenolics (4AAP)	2.0	ug/L	10	9	2	78	23	10	**	0.008	0.001	0.04
25	Oil and grease	1.0	mg/L	10	9	1	82	15	10	0.024	8.4	1	40
98	Volume Discharged–Total		m3	56	56	1	103	30	56	–	–	–	–

* APPROX. LOADING (kg/year) = 40 Storm Events (>5mm of rainfall/24hr period) multiplied by the APPROX. LOADING (kg/event).
** Loading less than 0.001 kg/event or less than 0.001 kg/year

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
STORM WATER EFFLUENT MONITORING SUMMARY
PLANT SITE – NOVACOR CHEMICALS LTD. – MOORETOWN CONTROL POINT – ST 0200 Retention Ponds Discharge to River

				CONCENTRATION SUMMARY					LOADING SUMMARY (kg/event)			APPROX. LOADING	APPROX. LOADING
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX	(kg/event)	* (kg/year)
3	Hydrogen ion (pH)			12	12	7.8	9.0	8.3	12	–	–	–	–
5	DOC	1.0	mg/L	12	11	1	7	5	12	1.8	49	16	900
5	TOC	5.0	mg/L	12	8	2	8	6	12	4.9	52	19	1000
6	Total phosphorus	0.10	mg/L	12	6	0.1	1.0	0.2	12	0.05	3	0.7	39
7	Specific conductance	500.0	uS/cm	12	1	245	620	391	12	–	–	–	–
8	Total suspended solids	5.0	mg/L	12	12	6	44	23	12	6.7	170	75	4100
9	Aluminum	30.0	ug/L	12	12	150	2600	916	12	0.17	8.7	2.9	160
9	Zinc	10.0	ug/L	12	10	4	58	31	12	0.009	0.41	0.098	5.4
25	Oil and grease	1.0	mg/L	12	3	1	2	1	12	1.1	7	3	170
98	Volume Discharged–Total		m3	12	12	711	7,241	3,005	12	–	–	–	–

* APPROX. LOADING (kg/year) = 55 Storm Events (>5mm of rainfall/24hr period) multiplied by the APPROX. LOADING (kg/event).

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
STORM WATER EFFLUENT MONITORING SUMMARY
PLANT SITE – NOVACOR CHEMICALS LTD. – MOORETOWN CONTROL POINT – ST 0400 West Ditch Runoff to CO 0100

				CONCENTRATION SUMMARY					LOADING SUMMARY (kg/event)			APPROX. LOADING	APPROX. LOADING
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX	(kg/event)	* (kg/year)
3	Hydrogen ion (pH)			13	13	7.8	8.2	8.0	12	–	–	–	–
5	DOC	1.0	mg/L	13	12	1	10	7	12	1.3	110	28	1500
5	TOC	5.0	mg/L	13	10	1	14	9	12	1.5	150	36	2000
6	Total phosphorus	0.10	mg/L	13	4	0.1	0.4	0.1	12	0.018	1.5	0.4	22
7	Specific conductance	500.0	uS/cm	13	1	230	530	392	12	–	–	–	–
8	Total suspended solids	5.0	mg/L	13	13	10	273	63	12	13	1100	190	10000
9	Aluminum	30.0	ug/L	13	13	150	7800	2332	12	0.39	27	5.9	330
9	Zinc	10.0	ug/L	13	13	46	400	121	12	0.016	4.3	0.63	35
14	Phenolics (4AAP)	2.0	ug/L	13	6	0.3	7.0	2.7	12	**	0.075	0.012	0.66
25	Oil and grease	1.0	mg/L	13	2	1	5	1	12	0.18	12	4.5	250
98	Volume Discharged–Total		m3	12	12	182	10,800	3,798	12	–	–	–	–

* APPROX. LOADING (kg/year) = 55 Storm Events (>5mm of rainfall/24hr period) multiplied by the APPROX. LOADING (kg/event).
** Loading less than 0.001 kg/event or less than 0.001 kg/year
CO 0100 – Final Effluent to River

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
STORM WATER EFFLUENT MONITORING SUMMARY
PLANT SITE – POLYSAR LTD. – SARNIA

CONTROL POINT – ST 1300 Butyl II Storm Water to Cole Drain

				CONCENTRATION SUMMARY					LOADING SUMMARY (kg/event)			APPROX. LOADING	APPROX. LOADING
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX	(kg/event)	* (kg/year)
3	Hydrogen ion (pH)			10	10	7.6	8.5	7.9	10	–	–	–	–
5	DOC	1.0	mg/L	11	11	2	8	5	11	0.64	12	3.4	170
5	TOC	5.0	mg/L	9	6	3	12	6	9	0.86	13	4.2	210
6	Total phosphorus	0.10	mg/L	11	8	0.1	0.9	0.3	11	0.017	0.66	0.21	10
7	Specific conductance	500.0	uS/cm	11	4	210	790	425	11	–	–	–	–
8	Total suspended solids	5.0	mg/L	11	9	4	420	75	11	1	320	54	2600
9	Aluminum	30.0	ug/L	11	11	340	9,200	1,967	11	0.083	6.9	1.4	70
9	Zinc	10.0	ug/L	11	11	84	1,600	435	11	0.032	1.2	0.32	15
14	Phenolics (4AAP)	2.0	ug/L	11	9	2	7	4	11	**	0.016	0.003	0.15
16	Bromomethane	3.7	ug/L	11	7	2	5,363	922	11	**	2.5	0.39	19
16	Chloromethane	3.7	ug/L	11	7	2	77,000	12,472	11	**	20	4.3	210
25	Oil and grease	1.0	mg/L	11	10	1	17	5	11	0.28	13	3	150
98	Volume Discharged–Total		m3	11	11	201	2,224	663	11	–	–	–	–

* APPROX. LOADING (kg/year) = 49 Storm Events (>5mm of rainfall/24hr period) multiplied by the APPROX. LOADING (kg/event).
** Loading less than 0.001 kg/event or less than 0.001 kg/year

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
STORM WATER EFFLUENT MONITORING SUMMARY
PLANT SITE – POLYSAR LTD. – SARNIA CONTROL POINT – ST 1500 Salvage Area Drainage to River

				CONCENTRATION SUMMARY					LOADING SUMMARY (kg/event)			APPROX. LOADING	APPROX. LOADING
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX	(kg/event)	* (kg/year)
3	Hydrogen ion (pH)			12	12	6.8	8.3	8.0	12	–	–	–	–
5	DOC	1.0	mg/L	11	11	2	8	5	11	0.57	20	4	200
5	TOC	5.0	mg/L	10	7	3	26	8	10	1.2	23	6	290
6	Total phosphorus	0.10	mg/L	12	9	0.1	0.9	0.3	12	0.018	0.68	0.2	9.6
7	Specific conductance	500.0	uS/cm	12	4	210	1440	552	12	–	–	–	–
8	Total suspended solids	5.0	mg/L	12	11	4	1050	185	12	0.96	340	110	5500
9	Aluminum	30.0	ug/L	12	12	90	12000	2553	12	0.021	3.9	1.7	81
9	Boron	50.0	ug/L	12	10	24	98	65	12	0.012	0.15	0.043	2.1
9	Copper	10.0	ug/L	12	11	10	120	56	12	0.002	0.13	0.044	2.2
9	Lead	30.0	ug/L	12	8	10	69	37	12	0.002	0.081	0.029	1.4
9	Nickel	20.0	ug/L	12	6	9	46	27	12	0.002	0.057	0.021	1
9	Zinc	10.0	ug/L	12	12	26	370	203	12	0.006	0.46	0.16	7.7
14	Phenolics (4AAP)	2.0	ug/L	12	11	2	16	7	12	**	0.021	0.006	0.29
16	1,1,2–Trichloroethane	0.6	ug/L	12	5	1	330	30	12	**	0.43	0.037	1.8
16	1,2–Dichloroethane	0.8	ug/L	12	6	0.4	1100	98	12	**	1.4	0.12	6
23	Hexachlorobenzene	10.0	ng/L	4	4	83	440	281	4	**	0.001	**	**
23	Octachlorostyrene	10.0	ng/L	4	2	3	24	12	4	**	**	**	**
23	Pentachlorobenzene	10.0	ng/L	4	2	4	20	11	4	**	**	**	**
25	Oil and grease	1.0	mg/L	12	11	1	7	4	12	0.3	18	3.7	180
98	Volume Discharged–Total		m3	12	12	228	2,526	746	12	–	–	–	–

* APPROX. LOADING (kg/year) = 49 Storm Events (>5mm of rainfall/24hr period) multiplied by the APPROX. LOADING (kg/event).
** Loading less than 0.001 kg/event or less than 0.001 kg/year

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
STORM WATER EFFLUENT MONITORING SUMMARY
PLANT SITE – POLYSAR LTD. – SARNIA

CONTROL POINT – ST 1600 Trade Waste Sewer to River

				CONCENTRATION SUMMARY					LOADING SUMMARY (kg/event)			APPROX. LOADING	APPROX. LOADING
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX	(kg/event)	* (kg/year)
3	Hydrogen ion (pH)			11	11	8.0	8.3	8.2					
5	DOC	1.0	mg/L	11	10	1	11	4					
6	Total phosphorus	0.10	mg/L	11	2	0.1	0.3	0.1					
7	Specific conductance	500.0	uS/cm	11	0	200	235	221					
8	Total suspended solids	5.0	mg/L	11	5	4	12	7					
9	Aluminum	30.0	ug/L	11	9	19	1100	181					
9	Copper	10.0	ug/L	11	4	5	54	14					
9	Zinc	10.0	ug/L	11	9	4	180	36					
14	Phenolics (4AAP)	2.0	ug/L	11	4	0.3	6.0	2.3					
25	Oil and grease	1.0	mg/L	11	3	1	8	2					
98	Ftflow		m3/day	10	10	1,799	4,143	2,950					

NOTE: No storm duration data was provided therefore no loading calculations possible
* APPROX. LOADING (kg/year) = 49 Storm Events (>5mm of rainfall/24hr period) multiplied by the APPROX. LOADING (kg/event).

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
STORM WATER EFFLUENT MONITORING SUMMARY
PLANT SITE – POLYSAR LTD. – SARNIA CONTROL POINT – ST 2200 24 Inch Storm Sewer to River

				CONCENTRATION SUMMARY					LOADING SUMMARY (kg/event)			APPROX. LOADING (kg/event)	APPROX. LOADING * (kg/year)
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX		
3	Hydrogen ion (pH)			12	12	7.2	8.4	8.1	12	–	–	–	–
5	DOC	1.0	mg/L	11	11	2	7	5	11	0.57	8.6	1.9	93
5	TOC	5.0	mg/L	12	9	4	20	7	12	0.63	11	2.5	120
6	Total phosphorus	0.10	mg/L	12	9	0.1	1.6	0.3	12	0.009	0.24	0.094	4.6
7	Specific conductance	500.0	uS/cm	12	10	360	6080	1851	12	–	–	–	–
8	Total suspended solids	5.0	mg/L	12	12	19	1660	390	12	2	360	120	5700
9	Aluminum	30.0	ug/L	12	12	880	27600	7190	12	0.094	6.4	2.1	100
9	Boron	50.0	ug/L	12	9	5	130	64	12	0.002	0.067	0.019	0.93
9	Copper	10.0	ug/L	12	12	13	66	30	12	0.001	0.041	0.011	0.54
9	Lead	30.0	ug/L	12	7	10	110	37	12	0.001	0.027	0.012	0.59
9	Zinc	10.0	ug/L	12	12	80	680	304	12	0.009	0.22	0.098	4.8
14	Phenolics (4AAP)	2.0	ug/L	12	12	3	25	11	12	0.001	0.015	0.004	0.2
23	Hexachlorobenzene	10.0	ng/L	12	9	3	270	76	12	**	**	**	**
25	Oil and grease	1.0	mg/L	12	11	1	9	4	12	0.15	9.4	1.8	90
98	Volume Discharged–Total		m3	12	12	107	1,181	349	12	–	–	–	–

* APPROX. LOADING (kg/year) = 49 Storm Events (>5mm of rainfall/24hr period) multiplied by the APPROX. LOADING (kg/event).
** Loading less than 0.001 kg/event or less than 0.001 kg/year

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
STORM WATER EFFLUENT MONITORING SUMMARY
PLANT SITE – ROHM AND HAAS CANADA INC. – MORRISBURG CONTROL POINT – ST 0300 West Ditch to On–Site Swamp

				CONCENTRATION SUMMARY					LOADING SUMMARY (kg/event)			APPROX. LOADING (kg/event)	APPROX. LOADING * (kg/year)
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX		
3	Hydrogen ion (pH)			9	9	7.4	7.9	7.7	9	–	–	–	–
5	DOC	1.0	mg/L	9	9	3	14	6	9	0.25	2	0.75	41
6	Total phosphorus	0.10	mg/L	9	2	0.1	0.3	0.1	9	0.004	0.044	0.013	0.72
7	Specific conductance	500.0	uS/cm	9	7	423	1101	661	9	–	–	–	–
8	Total suspended solids	5.0	mg/L	9	6	3	15	9	9	0.19	2.4	1.1	59
9	Aluminum	30.0	ug/L	9	9	120	1100	392	9	0.005	0.16	0.048	2.6
9	Boron	50.0	ug/L	9	7	16	94	63	9	0.002	0.014	0.007	0.39
9	Zinc	10.0	ug/L	9	7	7	190	44	9	0.001	0.01	0.004	0.22
14	Phenolics (4AAP)	2.0	ug/L	9	4	1	6	3	9	**	0.001	**	**
15	Sulphide	20.0	ug/L	9	5	19	140	44	9	0.002	0.021	0.005	0.28
25	Oil and grease	1.0	mg/L	9	7	1	3	2	9	0.039	0.48	0.22	12
98	Volume Discharged–Total		m3	9	9	44	157	113	9	–	–	–	–

* APPROX. LOADING (kg/year) = 55 Storm Events (>5mm of rainfall/24hr period) multiplied by the APPROX. LOADING (kg/event).
** Loading less than 0.001 kg/event or less than 0.001 kg/year

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
STORM WATER EFFLUENT MONITORING SUMMARY
PLANT SITE – ROHM AND HAAS CANADA INC. – MORRISBURG CONTROL POINT – ST 0600 North Ditch to On–Site Swamp

				CONCENTRATION SUMMARY					LOADING SUMMARY (kg/event)			APPROX. LOADING (kg/event)	APPROX. LOADING * (kg/year)
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX		
3	Hydrogen ion (pH)			6	6	7.3	7.7	7.5	6	–	–	–	–
5	DOC	1.0	mg/L	6	6	2	15	7	6	**	17	2.9	160
6	Total phosphorus	0.10	mg/L	6	1	0.1	0.1	0.1	6	**	0.079	0.013	0.72
7	Specific conductance	500.0	uS/cm	6	5	381	715	556	6	–	–	–	–
8	Total suspended solids	5.0	mg/L	6	1	3	7	4	6	**	5	0.84	46
9	Aluminum	30.0	ug/L	6	4	9	300	80	6	**	0.056	0.009	0.5
9	Boron	50.0	ug/L	6	6	56	220	116	6	**	0.16	0.027	1.5
9	Zinc	10.0	ug/L	6	3	4	19	12	6	**	0.011	0.002	0.11
25	Oil and grease	1.0	mg/L	5	5	2	3	2	5	**	2.4	0.48	27
98	Volume Discharged–Total		m3	6	6	0.12	1,145	191	6	–	–	–	–

* APPROX. LOADING (kg/year) = 55 Storm Events (>5mm of rainfall/24hr period) multiplied by the APPROX. LOADING (kg/event).
** Loading less than 0.001 kg/event or less than 0.001 kg/year

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
STORM WATER EFFLUENT MONITORING SUMMARY
PLANT SITE – UNIROYAL CHEMICALS LTD. – ELMIRA CONTROL POINT – ST 0400 Outfall #4 to River

				CONCENTRATION SUMMARY					LOADING SUMMARY (kg/event)			APPROX. LOADING	APPROX. LOADING
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX	(kg/event)	* (kg/year)
2	Cyanide Total	0.005	mg/L	9	5	0.002	0.014	0.007	9	**	0.002	0.001	0.053
3	Hydrogen ion (pH)			13	13	7.3	9.4	7.9	12	–	–	–	–
4	Ammonia plus Ammonium	0.25	mg/L	14	13	0.2	1.8	1.0	13	0.006	0.32	0.089	4.7
4	Nitrate+Nitrite	0.25	mg/L	14	13	0.03	4.20	1.39	13	0.007	1.2	0.16	8.5
4	Total Kjeldahl nitrogen	0.5	mg/L	14	14	1	6	2	13	0.022	1	0.21	11
5	DOC	1.0	mg/L	14	14	2	34	14	13	0.041	5.9	1.3	69
5	TOC	5.0	mg/L	10	10	8	53	21	9	0.097	6	2.1	110
6	Total phosphorus	0.10	mg/L	14	9	0.1	1.1	0.3	13	0.001	0.1	0.024	1.3
7	Specific conductance	500.0	uS/cm	13	11	359	5550	1329	12	–	–	–	–
8	Total suspended solids	5.0	mg/L	14	13	4	672	135	13	0.13	53	10	550
9	Aluminum	30.0	ug/L	14	14	40	6800	2179	13	0.001	1.2	0.2	11
9	Boron	50.0	ug/L	14	4	7	72	36	13	**	0.01	0.002	0.11
9	Chromium	20.0	ug/L	14	6	4	220	37	13	**	0.006	0.002	0.11
9	Copper	10.0	ug/L	14	11	7	300	56	13	**	0.016	0.004	0.21
9	Lead	30.0	ug/L	14	6	10	82	32	13	**	0.014	0.003	0.16
9	Zinc	10.0	ug/L	14	14	40	420	165	13	0.001	0.059	0.013	0.69
11	Chromium (hexavalent)	10.0	ug/L	1	1	20	20	20	1	0.004	0.004	0.004	0.21
12	Mercury	0.10	ug/L	14	8	0.02	0.38	0.14	13	**	**	**	**
14	Phenolics (4AAP)	2.0	ug/L	13	13	8	1,200	277	12	**	0.078	0.013	0.69
17	Toluene	0.5	ug/L	14	5	0.4	18.0	3.9	13	**	0.001	**	**
17	o–Xylene	0.5	ug/L	14	4	0.4	2.9	0.7	13	**	0.001	**	**
25	Oil and grease	1.0	mg/L	14	14	1	43	12	13	0.031	6.5	1.2	63
98	Volume Discharged–Total		m3	13	13	9	292	75	13	–	–	–	–

* APPROX. LOADING (kg/year) = 53 Storm Events (>5mm of rainfall/24hr period) multiplied by the APPROX. LOADING (kg/event).
** Loading less than 0.001 kg/event or less than 0.001 kg/year

APPENDIX G

EMERGENCY OVERFLOW EFFLUENT MONITORING SUMMARY

PAGE

AMOCO G-2
DOW CHEMICAL G-4
NOVACOR G-7
POLYSAR LTD G-8
STEPAN G-13

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT ***
EMERGENCY OVERFLOW EFFLUENT MONITORING SUMMARY
PLANT SITE – AMOCO CANADA RESOURCES LTD. – SARNIA CONTROL POINT – EM 0200 API Surge Pond By Pass

				CONCENTRATION SUMMARY					LOADING SUMMARY (APPROX.) (kg/event)			
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX	AVG
3	Hydrogen ion (pH)			1	1			7.8				
4	Ammonia plus Ammonium	0.25	mg/L	1	0			0.03	1			0.011
4	Nitrate+Nitrite	0.25	mg/L	1	1			0.44	1			0.19
4	Total Kjeldahl nitrogen	0.5	mg/L	1	1			1.4	1			0.62
5	DOC	1.0	mg/L	1	1			18	1			8.1
5	TOC	5.0	mg/L	1	1			21	1			9.5
6	Total phosphorus	0.1	mg/L	1	1			0.23	1			0.1
7	Specific conductance	500.0	uS/cm	1	1			1020				
8	Total suspended solids	5.0	mg/L	1	1			28	1			13
9	Aluminum	30.0	ug/L	1	1			566	1			0.25
9	Boron	50.0	ug/L	1	1			57	1			0.025
9	Molybdenum	20.0	ug/L	1	1			125	1			0.056
9	Zinc	10.0	ug/L	1	1			53	1			0.024
12	Mercury	0.1	ug/L	1	1			0.2	1			–
14	Phenolics (4AAP)	2.0	ug/L	1	1			2.3	1			0.001
16	1,2–Dichlorobenzene	1.4	ug/L	1	1			17.7	1			0.008
16	Bromodichloromethane	0.8	ug/L	1	1			0.9	1			–
16	Carbon tetrachloride	1.3	ug/L	1	1			6.4	1			0.003
16	Chlorobenzene	0.7	ug/L	1	1			1.4	1			0.001
16	Chloroform	0.7	ug/L	1	1			1.9	1			0.001
25	Oil and grease	1.0	mg/L	1	1			1.8	1			0.8
98	Discharge Duration		h	1	1			8				
98	Volume Discharged–Total		m3	1	1			446				

Note : '–' Loading less than 0.001 kg/event
*** ONLY ONE BY–PASS RESULT REPORTED THEREFORE ANY RESULT ABOVE THE RMDL IS SHOWN

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
EMERGENCY OVERFLOW EFFLUENT MONITORING SUMMARY
PLANT SITE – AMOCO CANADA RESOURCES LTD. – SARNIA CONTROL POINT – EM 0300 API Surge Pond Overflow

				CONCENTRATION SUMMARY					LOADING SUMMARY (APPROX.) (kg/event)			
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX	AVG
3	Hydrogen ion (pH)			8	8	7.4	8.2	7.8				
4	Ammonia plus Ammonium	0.25	mg/L	8	0	0.03	0.08	0.04	8	0.003	0.018	0.009
4	Nitrate+Nitrite	0.25	mg/L	8	6	0.07	4.60	0.90	8	0.025	1.3	0.22
4	Total Kjeldahl nitrogen	0.5	mg/L	8	8	0.8	1.7	1.4	8	0.1	0.67	0.34
5	DOC	1.0	mg/L	8	8	6	86	19	8	0.73	14	3.7
5	TOC	5.0	mg/L	8	8	6	89	21	8	0.76	14	4.2
6	Total phosphorus	0.1	mg/L	8	8	0.1	1.0	0.5	8	0.022	0.36	0.12
7	Specific conductance	500.0	uS/cm	8	8	550	1640	1051				
8	Total suspended solids	5.0	mg/L	8	8	18	100	59	8	3.1	36	15
9	Aluminum	30.0	ug/L	8	8	481	3300	1965	8	0.084	1.2	0.53
9	Boron	50.0	ug/L	8	2	30	69	46	8	0.004	0.024	0.011
9	Molybdenum	20.0	ug/L	8	8	32	480	195	8	0.005	0.17	0.053
9	Zinc	10.0	ug/L	8	8	44	210	99	8	0.006	0.035	0.022
12	Mercury	0.1	ug/L	8	6	0.02	0.48	0.22	8	–	–	–
14	Phenolics (4AAP)	2.0	ug/L	8	6	1.0	21.0	8.3	8	–	0.006	0.002
15	Sulphide	20.0	ug/L	8	2	2.0	60.0	23.6	8	–	0.024	0.006
16	1,2–Dichlorobenzene	1.4	ug/L	8	7	0.4	170.0	59.2	8	–	0.06	0.016
16	1,3–Dichlorobenzene	1.1	ug/L	8	3	0.3	4.5	1.3	8	–	0.001	–
16	1,4–Dichlorobenzene	1.7	ug/L	8	4	0.2	26.0	7.2	8	–	0.009	0.002
16	Bromodichloromethane	0.8	ug/L	8	2	0.4	0.9	0.5	8	–	–	–
16	Carbon tetrachloride	1.3	ug/L	8	4	0.3	23.0	6.2	8	–	0.005	0.001
16	Chlorobenzene	0.7	ug/L	8	5	0.6	23.0	7.2	8	–	0.006	0.002
16	Chloroform	0.7	ug/L	8	7	0.4	10.0	3.7	8	–	0.002	0.001
25	Oil and grease	1.0	mg/L	8	7	0.9	7.3	4.0	8	0.14	2.3	1
98	Discharge Duration		h	8	8	8	24	15				
98	Volume Discharged–Total		m3	8	8	120	393	233				

Note : '–' Loading less than 0.001 kg/event

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
EMERGENCY OVERFLOW EFFLUENT MONITORING SUMMARY
PLANT SITE – DOW CHEMICAL CANADA INC. – SARNIA CONTROL POINT – EM 1300 Styrene Stripper Effluent

				CONCENTRATION SUMMARY					LOADING SUMMARY (APPROX.) (kg/event)			
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX	AVG
3	Hydrogen ion (pH)			25	25	9.6	12.2	11.5				
4	Ammonia plus Ammonium	0.25	mg/L	4	4	2.00	3.34	2.70				
4	Nitrate+Nitrite	0.25	mg/L	4	0	0.03	0.15	0.11				
4	Total Kjeldahl nitrogen	0.5	mg/L	3	3	1.4	3.9	3.0				
5	DOC	1.0	mg/L	11	11	4	121	15				
5	TOC	5.0	mg/L	12	3	3	97	13				
6	Total phosphorus	0.1	mg/L	1	0	0.1	0.1	0.1				
7	Specific conductance	500.0	uS/cm	25	24	353	12900	6677				
8	Total suspended solids	5.0	mg/L	12	9	3	20	10				
9	Aluminum	30.0	ug/L	12	12	99	5290	2188				
9	Copper	10.0	ug/L	12	5	7	46	18				
14	Phenolics (4AAP)	2.0	ug/L	12	12	200	3340	2483				
17	Styrene	0.5	ug/L	11	11	1.5	26.2	7.8				
17	o–Xylene	0.5	ug/L	11	11	0.8	26.2	7.0				
25	Oil and grease	1.0	mg/L	3	1	1.0	2.6	1.5				

Note : No flow data was provided

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
EMERGENCY OVERFLOW EFFLUENT MONITORING SUMMARY
PLANT SITE – DOW CHEMICAL CANADA INC. – SARNIA CONTROL POINT – EM 1400 Latex Stripper Tails

				CONCENTRATION SUMMARY					LOADING SUMMARY (APPROX.) (kg/event)			
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX	AVG
1	COD	10.0	mg/L	1	1	72	72	72	1	3.9	3.9	3.9
2	Cyanide Total	0.005	mg/L	58	27	0.005	0.037	0.009	58	–	0.002	–
3	Hydrogen ion (pH)			150	150	3.4	10.8	7.0				
4	Ammonia plus Ammonium	0.25	mg/L	62	59	0.03	89.50	6.94	62	0.001	3.4	0.31
4	Nitrate+Nitrite	0.25	mg/L	5	1	0.05	1.50	0.39	5	0.003	0.082	0.02
4	Total Kjeldahl nitrogen	0.5	mg/L	62	50	0.1	50.4	4.3	62	0.006	1.8	0.19
5	DOC	1.0	mg/L	62	62	2	1955	86	62	0.057	130	5
5	TOC	5.0	mg/L	63	61	1	321	58	63	0.055	21	3.2
6	Total phosphorus	0.1	mg/L	5	1	0.01	0.92	0.23	5	0.001	0.051	0.012
7	Specific conductance	500.0	uS/cm	151	4	50	65500	1287				
8	Total suspended solids	5.0	mg/L	63	3	1	9	3	63	0.029	0.59	0.19
8	Volatile suspended solids	10.0	mg/L	1	–	3	3	3	1	0.16	0.16	0.16
9	Copper	10.0	ug/L	63	8	3	456	20	63	–	0.016	0.001
9	Lead	30.0	ug/L	5	2	24	430	157	5	0.001	0.028	0.007
14	Phenolics (4AAP)	2.0	ug/L	63	62	0.2	1790.0	950.8	63	–	0.12	0.051
16	1,1,2,2–Tetrachloroethane	4.3	ug/L	5	2	0.4	723.1	240.6	5	–	0.045	0.015
16	Bromoform	3.7	ug/L	5	2	0.4	133.6	42.4	5	–	0.008	0.003
16	Carbon tetrachloride	1.3	ug/L	61	23	0.1	3646.0	215.6	59	–	0.19	0.012
17	Ethylbenzene	0.6	ug/L	5	5	44	1361	469	5	0.003	0.085	0.024
17	Styrene	0.5	ug/L	61	55	0.1	21859.0	1888.8	59	–	1.2	0.11
17	o–Xylene	0.5	ug/L	5	3	0.1	1863.0	627.3	5	–	0.12	0.034
20	2,3,4,5–Tetrachlorophenol	0.4	ug/L	5	5	0.5	0.5	0.5	5	–	–	–
20	2,3,4–Trichlorophenol	0.6	ug/L	5	5	0.7	0.7	0.7	5	–	–	–
20	2,4–Dimethylphenol	7.3	ug/L	5	2	2.4	18.6	8.3	5	–	0.001	–
20	4–Chloro–3–methylphenol	1.5	ug/L	5	3	0.9	10.2	3.7	5	–	0.001	–
20	Phenol	2.4	ug/L	5	5	186	996	564	5	0.011	0.056	0.028
20	m–Cresol	3.4	ug/L	5	3	3	397	186	5	–	0.02	0.008
20	o–Cresol	3.7	ug/L	5	5	11	51	28	5	0.001	0.003	0.001
20	p–Cresol	3.5	ug/L	5	3	3	397	186	5	–	0.02	0.008
23	1,2,3,5–Tetrachlorobenzene	10.0	ng/L	5	3	1	957	411	5	–	–	–
23	1,2,4,5–Tetrachlorobenzene	10.0	ng/L	5	4	1	48800	11170	5	–	0.003	0.001
23	Hexachlorobenzene	10.0	ng/L	5	3	1	370	183	5	–	–	–
25	Oil and grease	1.0	mg/L	22	21	1	38	14	22	0.055	1.9	0.75
98	Flow, Average		m3/day	150	150	7	65	55				

Note : '–' Loading less than 0.001 kg/event

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
EMERGENCY OVERFLOW EFFLUENT MONITORING SUMMARY
PLANT SITE – DOW CHEMICAL CANADA INC. – SARNIA CONTROL POINT – EM 1500 HDPE Stripper Effluent

				CONCENTRATION SUMMARY					LOADING SUMMARY (APPROX.) (kg/event)			
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX	AVG
3	Hydrogen ion (pH)			67	67	10.3	11.5	11.0				
4	Ammonia plus Ammonium	0.25	mg/L	2	0	0.03	0.03	0.03	1	0.003	0.003	0.003
4	Nitrate+Nitrite	0.25	mg/L	2	0	0.03	0.03	0.03	1	0.003	0.003	0.003
4	Total Kjeldahl nitrogen	0.5	mg/L	2	0	0.16	0.20	0.18	1	0.024	0.024	0.024
5	DOC	1.0	mg/L	30	30	2	9	5	13	0.47	0.92	0.68
5	TOC	5.0	mg/L	30	14	2	10	5	13	0.34	1.1	0.7
6	Total phosphorus	0.1	mg/L	2	1	0.07	33.00	16.54	1	3.9	3.9	3.9
7	Specific conductance	500.0	uS/cm	67	67	884	18100	2049				
8	Total suspended solids	5.0	mg/L	30	11	3	30	7	13	0.32	1	0.42
9	Aluminum	30.0	ug/L	2	2	57900	62530	60215	1	6.8	6.8	6.8
9	Molybdenum	20.0	ug/L	2	2	122	133	128	1	0.014	0.014	0.014
9	Vanadium	30.0	ug/L	2	2	75	77	76	1	0.009	0.009	0.009
14	Phenolics (4AAP)	2.0	ug/L	30	28	2	37	14	13	–	0.004	0.002
20	2,3,4,5–Tetrachlorophenol	0.4	ug/L	2	2	0.5	0.5	0.5	1	–	–	–
20	2,3,4–Trichlorophenol	0.6	ug/L	2	2	0.7	0.7	0.7	1	–	–	–
20	Phenol	2.4	ug/L	2	1	2.4	3.3	2.9	1	–	–	–
25	Oil and grease	1.0	mg/L	10	7	1	49	7	4	0.13	5.9	1.6
98	Flow, Average		m3/day	30	30	104	135	118				

Note : '–' Loading less than 0.001 kg/event

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
EMERGENCY OVERFLOW EFFLUENT MONITORING SUMMARY
PLANT SITE – NOVACOR CHEMICALS LTD. – MOORETOWN CONTROL POINT–EM 0300 Storm Retention Ponds Emergency Overflow

				CONCENTRATION SUMMARY					LOADING SUMMARY (APPROX.) (kg/event)			
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX	AVG
3	Hydrogen ion (pH)			9	9	7.5	8.9	8.2				
5	DOC	1.0	mg/L	9	8	1	9	6	9	1.6	150	50
5	TOC	5.0	mg/L	9	7	1	10	6	9	1.7	150	53
6	Total phosphorus	0.1	mg/L	9	6	0.07	0.42	0.20	9	0.012	6.7	2
7	Specific conductance	500.0	uS/cm	9	2	280	800	452				
8	Total suspended solids	5.0	mg/L	9	9	7	61	25	9	1.2	540	210
9	Aluminum	30.0	ug/L	9	9	180	2000	808	9	0.24	40	7.9
9	Zinc	10.0	ug/L	9	9	12	150	66	9	0.02	3	0.63
25	Oil and grease	1.0	mg/L	9	5	1	3	1	9	0.31	58	14
98	Discharge Duration		h	9	9	13	110	47				
98	Volume Discharged–Total		m3	9	9	170	19900	8854				

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
EMERGENCY OVERFLOW EFFLUENT MONITORING SUMMARY
PLANT SITE – POLYSAR LTD. – SARNIA CONTROL POINT – EM 1301 Butyl II to Surge Pond

				CONCENTRATION SUMMARY					LOADING SUMMARY (APPROX.) (kg/event)			
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX	AVG
2	Cyanide Total	0.005	mg/L	6	0	0.001	0.005	0.003	1	0.001	0.001	0.001
3	Hydrogen ion (pH)			40	40	4.6	12.2	8.1				
4	Ammonia plus Ammonium	0.25	mg/L	6	1	0.05	0.40	0.18	1	0.041	0.041	0.041
4	Nitrate+Nitrite	0.25	mg/L	6	6	0.27	1.30	0.55	1	0.11	0.11	0.11
4	Total Kjeldahl nitrogen	0.5	mg/L	6	3	0.2	0.7	0.4	1	0.22	0.22	0.22
5	DOC	1.0	mg/L	42	42	2	55	16	36	0.026	10	3
5	TOC	5.0	mg/L	35	35	7	210000	6032	31	0.34	210	12
6	Total phosphorus	0.1	mg/L	43	23	0.07	9.90	0.78	37	0.001	0.77	0.084
7	Specific conductance	500.0	uS/cm	41	30	228	6960	1189				
8	Total suspended solids	5.0	mg/L	42	39	4	600	135	36	0.046	130	22
9	Aluminum	30.0	ug/L	43	43	72	220000	34464	37	0.006	100	7.6
9	Cadmium	2.0	ug/L	42	7	1	38	3	36	–	0.001	–
9	Chromium	20.0	ug/L	42	7	2	400	25	36	–	0.032	0.002
9	Copper	10.0	ug/L	42	18	2	550	32	36	–	0.013	0.002
9	Zinc	10.0	ug/L	42	42	92	38000	2561	36	0.006	7.4	0.44
11	Chromium (hexavalent)	10.0	ug/L	3	3	20	200	80	3	0.002	0.015	0.007
14	Phenolics (4AAP)	2.0	ug/L	42	39	1	380	22	36	–	0.021	0.003
16	1,1,2,2–Tetrachloroethane	4.3	ug/L	43	10	0.4	140.0	8.1	36	–	0.018	0.001
16	1,1,2–Trichloroethane	0.6	ug/L	43	9	0.6	230.0	10.4	37	–	0.03	0.002
16	1,1–Dichloroethane	0.8	ug/L	43	9	0.5	200.0	8.6	37	–	0.026	0.002
16	1,1–Dichloroethylene	2.8	ug/L	43	9	0.4	230.0	9.4	37	–	0.03	0.002
16	1,2–Dichlorobenzene	1.4	ug/L	43	9	0.4	160.0	7.0	37	–	0.021	0.001
16	1,2–Dichloroethane	0.8	ug/L	43	9	0.4	170.0	7.4	37	–	0.022	0.001
16	1,2–Dichloropropane	0.9	ug/L	43	9	0.5	220.0	9.6	37	–	0.029	0.002
16	1,3–Dichlorobenzene	1.1	ug/L	43	9	0.3	130.0	6.7	37	–	0.017	0.001
16	1,4–Dichlorobenzene	1.7	ug/L	43	9	0.2	96.0	5.4	37	–	0.013	0.001
16	Bromodichloromethane	0.8	ug/L	43	10	0.4	750.0	25.5	37	–	0.098	0.004
16	Bromoform	3.7	ug/L	43	9	0.4	130.0	6.8	37	–	0.017	0.001
16	Bromomethane	3.7	ug/L	43	36	2.4	13593	2454	37	–	13	0.64

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
EMERGENCY OVERFLOW EFFLUENT MONITORING SUMMARY
PLANT SITE – POLYSAR LTD. – SARNIA CONTROL POINT – EM 1301 Butyl II to Surge Pond

				CONCENTRATION SUMMARY					LOADING SUMMARY (APPROX.) (kg/event)			
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX	AVG
16	Carbon tetrachloride	1.3	ug/L	43	9	0.3	120.0	6.4	37	–	0.016	0.001
16	Chlorobenzene	0.7	ug/L	43	9	0.6	240.0	10.0	37	–	0.031	0.002
16	Chloroform	0.7	ug/L	43	11	0.4	1900.0	58.2	37	–	0.25	0.009
16	Chloromethane	3.7	ug/L	42	38	2.3	111654	20462	36	–	51	3.9
16	Cis–1,3–Dichloropropylene	1.4	ug/L	43	9	0.7	280.0	12.1	37	–	0.037	0.002
16	Dibromochloromethane	1.1	ug/L	43	10	0.4	170.0	9.2	37	–	0.022	0.002
16	Ethylene dibromide	1.0	ug/L	43	9	0.6	230.0	10.6	37	–	0.03	0.002
16	Methylene chloride	1.3	ug/L	43	13	0.3	1700.0	76.5	37	–	0.27	0.016
16	Tetrachloroethylene	1.1	ug/L	43	9	0.2	76.4	5.2	37	–	0.009	0.001
16	Trans–1,2–Dichloroethylene	1.4	ug/L	43	9	0.4	170.0	7.4	37	–	0.022	0.001
16	Trans–1,3–Dichloropropylene	1.4	ug/L	43	9	1.1	440.0	17.9	37	–	0.058	0.004
16	Trichloroethylene	1.9	ug/L	43	9	0.3	120.0	6.4	37	–	0.016	0.001
16	Trichlorofluoromethane	1.0	ug/L	43	9	0.3	140.0	10.0	37	–	0.016	0.002
16	Vinyl chloride	4.0	ug/L	43	9	2.9	1200.0	49.2	37	–	0.16	0.01
17	Benzene	0.5	ug/L	43	11	0.2	1100.0	38.7	37	–	1.5	0.056
17	Ethylbenzene	0.6	ug/L	43	9	0.4	140.0	7.3	37	–	0.019	0.001
17	Styrene	0.5	ug/L	43	9	0.4	140.0	6.7	37	–	0.019	0.001
17	Toluene	0.5	ug/L	43	12	0.4	1800	52.7	37	–	0.24	0.009
17	m–Xylene and p–Xylene	1.1	ug/L	42	9	0.5	190.0	11.4	36	–	0.025	0.002
17	o–Xylene	0.5	ug/L	42	10	0.4	170.0	7.7	36	–	0.022	0.002
18	Acrolein	4.0	ug/L	43	9	3.0	1200.0	62.1	37	–	0.16	0.01
18	Acrylonitrile	4.2	ug/L	43	9	1.9	760.0	34.4	37	–	0.1	0.007
19	Benzylbutylphthalate	0.6	ug/L	21	5	0.6	2.3	0.8	15	–	–	–
25	Oil and grease	1.0	mg/L	42	39	1	1451	80	36	0.001	190	9.6
98	Discharge Duration		h	37	37	1	24	9				
98	Volume Discharged–Total		m3	37	37	1	1158	190				

Note '–' Loading less than 0.001 kg/event
See ST 1300, Appendix F, for discharge concentrations to river.
Shading of data indicates uncertain presence or absence because the lowest analytical response (<WE) that was reported for a significant proportion of the data was greater than 10 times the RMDL.

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
EMERGENCY OVERFLOW EFFLUENT MONITORING SUMMARY
PLANT SITE – POLYSAR LTD. – SARNIA CONTROL POINT – EM 1302 DAF Overflow to Surge Pond

				CONCENTRATION SUMMARY					LOADING SUMMARY (APPROX.) (kg/event)			
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX	AVG
3	Hydrogen ion (pH)			3	3	9.0	11.1	10.0				
5	DOC	1.0	mg/L	3	3	6	7	7	3	0.69	0.94	0.77
5	TOC	5.0	mg/L	3	3	8	11	9	3	0.78	1.6	1.1
6	Total phosphorus	0.1	mg/L	3	–	0.07	0.07	0.07	3	0.006	0.01	0.008
7	Specific conductance	500.0	uS/cm	3	2	290	2100	1142				
8	Total suspended solids	5.0	mg/L	3	3	20	68	39	3	1.9	6.3	4.2
9	Aluminum	30.0	ug/L	3	3	3600	25000	15533	3	0.34	2.6	1.8
9	Copper	10.0	ug/L	3	1	2	18	8	3	–	0.002	0.001
9	Zinc	10.0	ug/L	3	3	140	780	363	3	0.013	0.073	0.037
14	Phenolics (4AAP)	2.0	ug/L	3	3	13	17	15	3	0.001	0.002	0.002
16	1,1,2,2–Tetrachloroethane	4.3	ug/L	3	3	18	35	23	3	0.002	0.003	0.002
16	1,1,2–Trichloroethane	0.6	ug/L	3	3	13	26	16	3	0.001	0.002	0.002
16	1,1–Dichloroethane	0.8	ug/L	3	3	9	16	12	3	0.001	0.002	0.001
16	1,1–Dichloroethylene	2.8	ug/L	3	3	13	26	16	3	0.001	0.002	0.002
16	1,2–Dichlorobenzene	1.4	ug/L	3	3	13	26	16	3	0.001	0.002	0.002
16	1,2–Dichloroethane	0.8	ug/L	3	3	9	16	12	3	0.001	0.002	0.001
16	1,2–Dichloropropane	0.9	ug/L	3	3	13	26	16	3	0.001	0.002	0.002
16	1,3–Dichlorobenzene	1.1	ug/L	3	3	13	26	16	3	0.001	0.002	0.002
16	1,4–Dichlorobenzene	1.7	ug/L	3	3	13	26	16	3	0.001	0.002	0.002
16	Bromodichloromethane	0.8	ug/L	3	3	13	26	16	3	0.001	0.002	0.002
16	Bromoform	3.7	ug/L	3	3	13	26	16	3	0.001	0.002	0.002
16	Bromomethane	3.7	ug/L	3	3	26	168	119	3	0.002	0.024	0.014
16	Carbon tetrachloride	1.3	ug/L	3	3	13	26	16	3	0.001	0.002	0.002
16	Chlorobenzene	0.7	ug/L	3	3	9	24	17	3	0.001	0.003	0.002
16	Chloroform	0.7	ug/L	3	3	9	16	12	3	0.001	0.002	0.001
16	Chloromethane	3.7	ug/L	3	3	7840	51495	23940	3	1.1	4.8	2.4
16	Cis–1,3–Dichloropropylene	1.4	ug/L	3	3	13	26	16	3	0.001	0.002	0.002

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
EMERGENCY OVERFLOW EFFLUENT MONITORING SUMMARY
PLANT SITE – POLYSAR LTD. – SARNIA CONTROL POINT – EM 1302 DAF Overflow to Surge Pond

				CONCENTRATION SUMMARY					LOADING SUMMARY (APPROX.) (kg/event)			
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX	AVG
16	Dibromochloromethane	1.1	ug/L	3	3	13	26	18	3	0.001	0.002	0.002
16	Ethylene dibromide	1.0	ug/L	3	3	13	26	18	3	0.001	0.002	0.002
16	Methylene chloride	1.3	ug/L	3	3	48	97	65	3	0.005	0.009	0.007
16	Tetrachloroethylene	1.1	ug/L	3	3	18	35	23	3	0.002	0.003	0.002
16	Trans–1,2–Dichloroethylene	1.4	ug/L	3	3	9	18	12	3	0.001	0.002	0.001
16	Trans–1,3–Dichloropropylene	1.4	ug/L	3	3	13	26	18	3	0.001	0.002	0.002
16	Trichloroethylene	1.9	ug/L	3	3	13	26	18	3	0.001	0.002	0.002
16	Trichlorofluoromethane	1.0	ug/L	3	3	35	70	47	3	0.003	0.007	0.005
16	Vinyl chloride	4.0	ug/L	3	3	40	79	53	3	0.004	0.007	0.006
17	Benzene	0.5	ug/L	3	3	9	18	12	3	0.001	0.002	0.001
17	Ethylbenzene	0.6	ug/L	3	3	13	26	18	3	0.001	0.002	0.002
17	Styrene	0.5	ug/L	3	3	9	18	15	3	0.001	0.003	0.002
17	Toluene	0.5	ug/L	3	3	13	101	47	3	0.001	0.015	0.006
17	m–Xylene and p–Xylene	1.1	ug/L	3	3	26	53	35	3	0.002	0.005	0.004
17	o–Xylene	0.5	ug/L	3	3	9	18	12	3	0.001	0.002	0.001
18	Acrolein	4.0	ug/L	3	3	57	114	76	3	0.005	0.011	0.008
18	Acrylonitrile	4.2	ug/L	3	3	44	61	54	3	0.005	0.006	0.006
25	Oil and grease	1.0	mg/L	3	3	3	24	10	3	0.37	2.2	1
98	Discharge Duration		h	5	5	3	7	5				
98	Volume Discharged–Total		m3	5	5	66	157	111				

Note : '–' Loading less than 0.001 kg/event
EM 1202 diversion to surge pond. – See ST 1300 , Appendix F , for discharge concentrations to river.
Shading of non–intake data indicates uncertain presence or absence because the lowest analytical response (<WE) that was reported for a significant proportion of the data was greater than 10 times the RMDL.

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
EMERGENCY OVERFLOW EFFLUENT MONITORING SUMMARY
PLANT SITE – POLYSAR LTD. – SARNIA CONTROL POINT – EM 2000 Biox Storm to River

				CONCENTRATION SUMMARY					LOADING SUMMARY (APPROX.) (kg/event)			
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX	AVG
3	Hydrogen ion (pH)			13	13	6.8	8.6	8.1				
5	DOC	1.0	mg/L	14	14	2	23	7	11	0.004	3.9	0.61
5	TOC	5.0	mg/L	14	10	4	11	6	11	0.007	6.2	0.92
6	Total phosphorus	0.1	mg/L	14	11	0.07	0.50	0.26	11	0.001	0.14	0.027
7	Specific conductance	500.0	uS/cm	14	6	200	1200	533				
8	Total suspended solids	5.0	mg/L	14	14	23	1900	552	11	1.2	550	77
8	Volatile suspended solids	10.0	mg/L	14	14	11	110	47	11	0.11	62	9.7
9	Aluminum	30.0	ug/L	14	14	320	22000	6813	11	0.016	6.4	0.9
9	Boron	50.0	ug/L	14	4	5	78	45	11	–	0.033	0.006
9	Chromium	20.0	ug/L	14	5	5	48	18	11	–	0.014	0.002
9	Copper	10.0	ug/L	14	13	8	100	39	11	–	0.029	0.005
9	Lead	30.0	ug/L	14	11	10	180	65	11	–	0.053	0.008
9	Nickel	20.0	ug/L	14	6	7	64	22	11	–	0.019	0.003
9	Vanadium	30.0	ug/L	14	3	3	560	61	11	–	0.016	0.003
9	Zinc	10.0	ug/L	14	12	4	3700	1502	11	0.007	0.93	0.18
10	Arsenic	5.0	ug/L	14	5	3	21	6	11	–	0.006	0.001
14	Phenolics (4AAP)	2.0	ug/L	14	13	2	20	10	11	–	0.007	0.001
17	Benzene	0.5	ug/L	14	7	0.2	4.6	1.5	11	–	0.001	–
17	Ethylbenzene	0.6	ug/L	14	3	0.4	9.9	1.3	11	–	–	–
17	Styrene	0.5	ug/L	14	3	0.4	7.0	1.0	11	–	–	–
23	Hexachlorobenzene	10.0	ng/L	14	4	3.0	31.0	10.2	11	–	–	–
23	Hexachloroethane	10.0	ng/L	14	3	1.7	50.0	8.2	11	–	–	–
25	Oil and grease	1.0	mg/L	14	12	1.0	9600.0	692.2	11	0.005	15	1.8
98	Discharge Duration		h	11	11	0.3	14.0	4.4				
98	Volume Discharged–Total		m3	11	11	2	566	112				

Note : '–' Loading less than 0.001 kg/event

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
EMERGENCY OVERFLOW EFFLUENT MONITORING SUMMARY
PLANT SITE – STEPAN CANADA INC. – LONGFORD MILLS CONTROL POINT – EM 0400 Emergency By–pass

				CONCENTRATION SUMMARY					LOADING SUMMARY (APPROX.) (kg/event)			
ATG	PARAMETER	RMDL	UNIT	N	D	MIN	MAX	AVG	N	MIN	MAX	AVG
2	Cyanide Total	0.005	mg/L	2	1	0.005	0.008	0.007	2	–	–	–
3	Hydrogen ion (pH)			2	2	12.2	12.8	12.5				
4	Ammonia plus Ammonium	0.25	mg/L	2	2	0.90	3.86	2.38	2	0.015	0.053	0.034
4	Nitrate+Nitrite	0.25	mg/L	2	2	0.60	1.80	1.20	2	0.002	0.11	0.054
4	Total Kjeldahl nitrogen	0.5	mg/L	2	2	5.2	8.8	7.0	2	0.035	0.31	0.17
5	DOC	1.0	mg/L	2	2	100	149	125	2	0.4	8.8	4.6
5	TOC	5.0	mg/L	2	2	120	303	212	2	0.48	18	9.2
6	Total phosphorus	0.1	mg/L	2	2	0.19	0.60	0.40	2	0.001	0.035	0.018
7	Specific conductance	500.0	uS/cm	2	2	9210	12300	10755				
8	Total suspended solids	5.0	mg/L	2	2	26	28	27	2	0.11	1.5	0.82
9	Aluminum	30.0	ug/L	2	2	122	404	263	2	0.002	0.007	0.004
9	Boron	50.0	ug/L	2	2	61	67	64	2	–	0.004	0.002
9	Cadmium	2.0	ug/L	2	1	2	3	3	2	–	–	–
9	Copper	10.0	ug/L	2	2	27	40	34	2	–	0.002	0.001
9	Lead	30.0	ug/L	2	1	10	38	24	2	–	0.001	–
9	Nickel	20.0	ug/L	2	2	23	31	27	2	–	0.002	0.001
9	Zinc	10.0	ug/L	2	2	83	94	89	2	–	0.005	0.003
11	Chromium (hexavalent)	10.0	ug/L	2	2	75	240	158	2	0.001	0.004	0.003
12	Mercury	0.1	ug/L	2	1	0.1	2.0	1.1	2	–	–	–
14	Phenolics (4AAP)	2.0	ug/L	2	2	390	2900	1645	2	0.012	0.023	0.017
15	Sulphide	20.0	ug/L	2	2	80	240	160	2	0.001	0.005	0.003
16	Carbon tetrachloride	1.3	ug/L	2	1	0.4	28.2	14.3	2	–	0.002	0.001
16	Chloroform	0.7	ug/L	2	2	38.6	67.5	53.1	2	–	0.004	0.002
25	Oil and grease	1.0	mg/L	2	2	58	115	86	2	0.23	6.8	3.5
27	PCBT	0.1	ug/L	2	2	0.6	4.5	2.5	2	–	–	–
98	Discharge Duration		h	1	1	0.5	0.5	0.5				
98	Volume Discharged–Total		m3	2	2	4.0	59.0	31.5				

Note : '–' Loading less than 0.001 kg/event

APPENDIX H

PLANT-MINISTRY MONITORING DATA COMPARISON TABLES

	PAGE
AMOCO	H-2
B.F. GOODRICH	H-3
CELANESE	H-4
CHINOOK	H-6
CORNWALL CHEMICALS	H-7
COURTAULDS	H-8
DOW CHEMICAL	H-10
DUPONT (CORUNNA)	H-18
DUPONT (KINGSTON)	H-19
DUPONT (MAITLAND)	H-21
DUPONT (WHITBY)	H-25
ESSO CHEMICAL	H-27
ETHYL	H-28
G.E. PLASTICS	H-30
GUARDSMAN	H-31
MORBERN	H-32
NOVACOR	H-33
POLYSAR	H-34
ROHM&HAAS (MORRISBURG)	H-40
STEPAN	H-41
UNIROYAL	H-42

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – AMOCO CANADA RESOURCES LTD. – SARNIA

				CONTROL POINT 0100			
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE 1	MOE 2
1	COD	10.0	mg/L	90.5	188.4	82.0	94.0
2	Cyanide Total	0.005	mg/L	0.006	0.038	0.002	0.001
3	Hydrogen ion (pH)			7.8	8.6	8.0	8.3
4	Ammonia plus Ammonium	0.25	mg/L	0.08	0.54	0.05	0.10
4	Nitrate+Nitrite	0.25	mg/L	0.07	0.34	0.05	0.05
4	Total Kjeldahl nitrogen	0.5	mg/L	1.7	3.85	1.8	1.7
5	DOC	1.0	mg/L	20.7	66.2	11.6	19.9
5	TOC	5.0	mg/L	27.3	89.2	22.0	24.0
6	Total phosphorus	0.10	mg/L	0.86	2.41	1.22	1.36
7	Specific conductance	500.0	uS/cm	1335.1	2775.1	1211.0	1167.0
8	Total suspended solids	5.0	mg/L	22.6	62.9	19.0	18.1
9	Aluminum	30.0	ug/L	414.9	1716.3	420.0	400.0
9	Boron	50.0	ug/L	57.7	98.1	2400.0	no data
9	Copper	10.0	ug/L	46.6	602.9	12.0	19.0
9	Molybdenum	20.0	ug/L	495.9	1733.8	610.0	790.0
9	Zinc	10.0	ug/L	46.0	172.3	65.0	56.0
10	Arsenic	5.0	ug/L	9.8	216.3	6.0	8.0
12	Mercury	0.1	ug/L	0.5	1.7	1.1	0.7
14	Phenolics (4AAP)	2.0	ug/L	8.8	38.0	7.8	3.8
15	Sulphide	20.0	ug/L	64.5	327.1	224.0	63.0
16	1,1–Dichloroethane	0.8	ug/L	2.0	24.9	0.5	0.5
16	1,2–Dichlorobenzene	1.4	ug/L	60.5	202.9	55.0	55.0
16	1,4–Dichlorobenzene	1.7	ug/L	3.5	29.7	4.0	3.0
16	Bromodichloromethane	0.8	ug/L	0.6	N/A	0.5	14.0
16	Carbon tetrachloride	1.3	ug/L	7.7	241.4	1.0	0.5
16	Chlorobenzene	0.7	ug/L	9.7	38.9	40.0	50.0
16	Chloroform	0.7	ug/L	5.2	19.0	14.0	40.0
17	Benzene	0.5	ug/L	40.2	826.9	3.0	1.0
17	Toluene	0.5	ug/L	16.9	58.0	2.0	4.0
17	m–Xylene and p–Xylene	1.1	ug/L	15.4	361.9	6.0	0.5
17	o–Xylene	0.5	ug/L	8.0	89.0	5.0	0.4
23	1,2,3–Trichlorobenzene	10.0	ng/L	44.7	N/A	1.0	1.0
25	Oil and grease	1.0	mg/L	4.1	15.8	6.0	1.0

EXPLANATORY NOTES:
(i) MOE data refers to Ministry Inspection Data.
(ii) Parameters for which either plant or MOE data were not available, are not listed.
(iii) LTA results are Twelve–Month Average Concentration Results.
(iv) "N/A" – no 99th percentile value calculated
(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.

Sampling Points
CO 0100 – API Separator Effluent to River

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – B.F. GOODRICH CANADA INC. – THOROLD

				CONTROL POINT 0100			
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE 1	MOE 2
1	COD	10.0	mg/L	25.1	58.0	54.0	28.0
2	Cyanide Total	0.005	mg/L	0.097	0.365	0.029	no data
3	Hydrogen ion (pH)			7.8	8.6	8.0	7.8
4	Ammonia plus Ammonium	0.25	mg/L	0.29	1.25	0.05	0.50
4	Nitrate+Nitrite	0.25	mg/L	0.93	5.15	1.40	1.50
4	Total Kjeldahl nitrogen	0.5	mg/L	1.3	3.8	1.5	2.2
5	DOC	1.0	mg/L	11.9	51.1	8.9	4.3
5	TOC	5.0	mg/L	16.1	75.5	15.0	9.0
6	Total phosphorus	0.10	mg/L	0.13	0.75	0.10	0.36
7	Specific conductance	500.0	uS/cm	1096.1	2446.4	1242.0	1124.0
8	Total suspended solids	5.0	mg/L	24.8	101.5	55.0	21.6
8	Volatile suspended solids	10.0	mg/L	11.7	54.9	18.0	12.2
9	Aluminum	30.0	ug/L	535.9	1200.4	1300.0	no data
9	Boron	50.0	ug/L	65.3	204.7	18.0	no data
9	Molybdenum	20.0	ug/L	28.4	197.8	10.0	no data
9	Zinc	10.0	ug/L	37.5	224.5	27.0	no data
14	Phenolics (4AAP)	2.0	ug/L	7.7	45.9	14.4	5.0
15	Sulphide	20.0	ug/L	34.3	103.2	24.0	no data
16	Chloroform	0.7	ug/L	8.8	39.1	14.0	4.0
16	Methylene chloride	1.3	ug/L	2.3	11.8	14.0	2.5
16	Trichloroethylene	1.9	ug/L	4.8	50.2	3.7	2.0
16	Vinyl chloride	4.0	ug/L	159.0	2999.5	280.0	13.0
17	Toluene	0.5	ug/L	0.8	N/A	0.3	0.2
25	Oil and grease	1.0	mg/L	1.2	3.4	5.0	no data

EXPLANATORY NOTES:
(i) MOE data refers to Ministry Inspection Data.
(ii) Parameters for which either plant or MOE data were not available, are not listed.
(iii) LTA results are Twelve–Month Average Concentration Results.
(iv) "N/A" – no 99th percentile value calculated
(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.

Sampling Points
PR 0100 – Final Effluent to River

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – CELANESE CANADA INC. – MILLHAVEN

				CONTROL POINT 0100			CONTROL POINT 0200		
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE 1	LTA	99th Per	MOE 1
1	COD	10.0	mg/L	18.6	47.8	30.0	9.3	19.4	14.0
2	Cyanide Total	0.005	mg/L	0.004	N/A	0.001	0.003	N/A	0.001
3	Hydrogen ion (pH)			8.1	8.3	8.0	8.2	8.4	8.1
4	Ammonia plus Ammonium	0.25	mg/L	0.27	2.60	0.05	0.05	0.18	0.05
4	Nitrate+Nitrite	0.25	mg/L	1.02	5.80	0.05	0.35	0.58	0.30
4	Total Kjeldahl nitrogen	0.5	mg/L	0.6	2.7	1.3	0.4	0.5	0.3
5	DOC	1.0	mg/L	4.7	12.4	4.7	2.8	8.3	2.9
5	TOC	5.0	mg/L	6.0	19.4	12.0	3.0	5.3	6.0
6	Total phosphorus	0.10	mg/L	0.44	3.39	0.52	0.03	0.62	0.02
7	Specific conductance	500.0	uS/cm	385.5	495.3	380.0	318.7	339.7	318.0
8	Total suspended solids	5.0	mg/L	4.5	16.3	15.0	3.2	15.4	12.0
8	Volatile suspended solids	10.0	mg/L	5.3	N/A	13.0	3.3	N/A	7.0
9	Aluminum	30.0	ug/L	51.7	343.0	81.0	46.7	192.6	260.0
9	Copper	10.0	ug/L	5.7	12.4	8.7	13.1	71.6	8.6
9	Zinc	10.0	ug/L	9.5	26.8	11.0	21.5	150.0	10.0
10	Antimony	5.0	ug/L	35.9	236.5	10.0	1.0	N/A	1.0
12	Mercury	0.10	ug/L	0.07	N/A	0.01	0.06	N/A	0.05
14	Phenolics (4AAP)	2.0	ug/L	0.8	2.0	4.2	0.9	3.3	1.2
15	Sulphide	20.0	ug/L	24.3	N/A	6.0	11.0	N/A	2.0
16	1,2–Dichloroethane	0.8	ug/L	0.7	N/A	0.5	0.7	N/A	0.5
16	Bromodichloromethane	0.8	ug/L	1.9	N/A	0.5	0.3	N/A	0.5
16	Chloroform	0.7	ug/L	1.3	7.1	2.0	1.1	N/A	0.2
16	Chloromethane	3.7	ug/L	1.5	N/A	1.0	1.2	N/A	1.0
16	Methylene chloride	1.3	ug/L	2.9	8.9	0.5	2.2	N/A	0.5
17	Benzene	0.5	ug/L	0.5	N/A	0.2	1.3	N/A	0.2
17	Toluene	0.5	ug/L	0.2	N/A	0.2	0.3	N/A	0.2
19	Biphenyl	0.6	ug/L	0.2	N/A	1.0	0.2	N/A	1.0
19	Bis(2–ethylhexyl) phthalate	2.2	ug/L	1.5	N/A	5.0	0.3	N/A	5.0
19	Di–n–butyl phthalate	3.8	ug/L	4.0	N/A	1.0	10.6	N/A	1.0
23	1,2,3,4–Tetrachlorobenzene	10.0	ng/L	1.7	N/A	1.0	1.2	N/A	1.0
23	1,2,3,5–Tetrachlorobenzene	10.0	ng/L	2.1	N/A	1.0	2.1	N/A	1.0
23	1,2,3–Trichlorobenzene	10.0	ng/L	3.4	N/A	1.0	3.2	N/A	1.0
23	1,2,4–Trichlorobenzene	10.0	ng/L	5.9	N/A	2.0	7.5	N/A	2.0
23	Pentachlorobenzene	10.0	ng/L	1.1	N/A	1.0	1.1	N/A	1.0
25	Oil and grease	1.0	mg/L	1.1	5.1	2.0	1.1	3.0	1.0

EXPLANATORY NOTES:
(i) MOE data refers to Ministry Inspection Data.
(ii) Parameters for which either plant or MOE data were not available, are not listed.
(iii) LTA results are Twelve–Month Average Concentration Results.
(iv) "N/A" – no 99th percentile value calculated
(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.

Sampling Points
CO 0100 – Centre Outfall to Lake
CO 0200 – West Outfall to Lake
CO 0300 – East Outfall to Lake
PR 0400 – Treatment Plant Effluent flows to CO 0100

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – CELANESE CANADA INC. – MILLHAVEN

				CONTROL POINT 0300			CONTROL POINT 0400		
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE 1	LTA	99th Per	MOE 1
1	COD	10.0	mg/L	9.1	20.7	10.0	30.5	N/A	38.0
2	Cyanide Total	0.005	mg/L	0.003	N/A	0.001	0.003	N/A	0.001
3	Hydrogen ion (pH)			8.2	8.4	8.1	8.1	8.3	7.9
4	Ammonia plus Ammonium	0.25	mg/L	0.05	0.20	0.05	1.28	25.17	0.05
4	Nitrate+Nitrite	0.25	mg/L	0.34	0.59	0.25	2.81	68.26	0.05
4	Total Kjeldahl nitrogen	0.5	mg/L	0.3	0.5	0.2	2.3	33.7	1.5
5	DOC	1.0	mg/L	2.4	7.7	2.0	6.7	11.2	7.0
5	TOC	5.0	mg/L	2.8	5.4	6.0	13.3	46.8	16.0
6	Total phosphorus	0.10	mg/L	0.05	1.35	0.02	1.13	6.63	0.86
7	Specific conductance	500.0	uS/cm	318.2	337.9	322.0	442.8	561.9	408.0
8	Total suspended solids	5.0	mg/L	2.3	7.9	6.2	7.5	27.6	17.0
8	Volatile suspended solids	10.0	mg/L	3.0	N/A	2.9	7.3	25.5	15.1
9	Aluminum	30.0	ug/L	53.3	165.9	120.0	53.1	183.1	34.0
9	Copper	10.0	ug/L	5.6	12.0	5.9	10.9	53.0	5.0
9	Zinc	10.0	ug/L	13.9	70.1	3.4	17.4	80.0	15.0
10	Antimony	5.0	ug/L	5.0	N/A	1.0	71.3	598.5	14.0
12	Mercury	0.10	ug/L	0.06	N/A	0.01	0.07	N/A	0.01
14	Phenolics (4AAP)	2.0	ug/L	1.4	4.8	2.4	0.8	3.2	1.2
15	Sulphide	20.0	ug/L	20.3	N/A	2.0	17.3	N/A	3.0
16	1,2–Dichloroethane	0.8	ug/L	0.7	N/A	0.5	0.7	N/A	0.5
16	Bromodichloromethane	0.8	ug/L	0.3	N/A	0.5	7.5	N/A	0.5
16	Chloroform	0.7	ug/L	1.7	N/A	0.2	0.8	N/A	0.2
16	Chloromethane	3.7	ug/L	1.7	N/A	1.0	1.4	N/A	1.0
16	Methylene chloride	1.3	ug/L	2.5	15.9	0.5	1.2	N/A	0.5
17	Benzene	0.5	ug/L	0.5	4.8	0.2	0.4	N/A	0.2
17	Toluene	0.5	ug/L	0.3	N/A	0.2	0.3	N/A	0.2
19	Biphenyl	0.6	ug/L	1.1	N/A	1.0	0.2	N/A	1.0
19	Bis(2–ethylhexyl) phthalate	2.2	ug/L	3.4	N/A	5.0	1.6	N/A	5.0
19	Di–n–butyl phthalate	3.8	ug/L	4.4	N/A	1.0	4.5	N/A	1.0
23	1,2,3,4–Tetrachloroberzene	10.0	ng/L	1.2	N/A	1.0	1.2	N/A	1.0
23	1,2,3,5–Tetrachloroberzene	10.0	ng/L	2.1	N/A	1.0	2.1	N/A	1.0
23	1,2,3–Trichloroberzene	10.0	ng/L	3.2	N/A	1.0	3.2	N/A	1.0
23	1,2,4–Trichloroberzene	10.0	ng/L	1.8	N/A	2.0	4.0	N/A	2.0
23	Pentachlorobenzene	10.0	ng/L	1.1	N/A	1.0	1.1	N/A	1.0
25	Oil and grease	1.0	mg/L	1.1	3.1	1.0	1.4	8.5	2.0

EXPLANATORY NOTES:
(i) MOE data refers to Ministry Inspection Data.
(ii) Parameters for which either plant or MOE data were not available, are not listed.
(iii) LTA results are Twelve–Month Average Concentration Results.
(iv) "N/A" – no 99th percentile value calculated
(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.

Sampling Points
CO 0100 – Centre Outfall to Lake
CO 0200 – West Outfall to Lake
CO 0300 – East Outfall to Lake
PR 0400 – Treatment Plant Effluent flows to CO 0100

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – CHINOOK GROUP LTD. – SOMBRA

				CONTROL POINT 0100			
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE 1	MOE 2
1	COD	10.0	mg/L	452.5	N/A	50.0	292.0
2	Cyanide Total	0.005	mg/L	0.003	N/A	0.014	0.001
3	Hydrogen ion (pH)			8.3	9.6	8.4	7.9
4	Ammonia plus Ammonium	0.25	mg/L	1.63	13.75	0.15	77.80
4	Nitrate+Nitrite	0.25	mg/L	1.00	3.48	0.85	0.05
4	Total Kjeldahl nitrogen	0.5	mg/L	17.8	196.5	4.6	183.0
5	DOC	1.0	mg/L	77.0	649.6	30.6	156.0
5	TOC	5.0	mg/L	134.9	1620.5	31.0	214.0
6	Total phosphorus	0.10	mg/L	4.36	24.40	0.84	6.05
7	Specific conductance	500.0	uS/cm	960.8	2673.9	719.0	2910.0
8	Total suspended solids	5.0	mg/L	14.9	58.7	21.2	298.0
8	Volatile suspended solids	10.0	mg/L	10.4	N/A	3.4	123.0
9	Aluminum	30.0	ug/L	282.4	1198.5	310.0	6400.0
9	Chromium	20.0	ug/L	93.5	611.2	11.0	150.0
9	Copper	10.0	ug/L	8.5	13.9	8.1	29.0
9	Zinc	10.0	ug/L	137.5	1015.5	11.0	140.0
10	Arsenic	5.0	ug/L	4.9	N/A	2.0	21.0
15	Sulphide	20.0	ug/L	35.0	N/A	200.0	510.0
16	Bromodichloromethane	0.8	ug/L	0.9	N/A	0.5	2.5
16	Chloroform	0.7	ug/L	2.5	N/A	6.0	1.0
16	Chloromethane	3.7	ug/L	4.5	N/A	1.0	5.0
16	Methylene chloride	1.3	ug/L	270.7	N/A	1.0	12.5
17	Benzene	0.5	ug/L	0.5	N/A	1.0	1.0
19	Benzylbutylphthalate	0.6	ug/L	0.6	N/A	0.5	0.5
19	Bis(2–ethylhexyl) phthalate	2.2	ug/L	2.6	N/A	1.0	4.0
19	Diphenyl ether	0.4	ug/L	1.1	N/A	0.2	0.2
23	1,2,4–Trichlorobenzene	10.0	ng/L	10.0	N/A	2.0	2.0
23	Hexachlorobutadiene	10.0	ng/L	10.0	N/A	1.0	1.0
25	Oil and grease	1.0	mg/L	1.6	5.3	1.0	4.0
27	PCBT	0.10	ug/L	0.15	N/A	0.02	0.02

EXPLANATORY NOTES:
(i) MOE data refers to Ministry Inspection Data.
(ii) Parameters for which either plant or MOE data were not available, are not listed.
(iii) LTA results are Twelve–Month Average Concentration Results.
(iv) "N/A" – no 99th percentile value calculated
(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.

Sampling Points
CO 0100 – Sump Effluent to River

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – CORNWALL CHEMICALS LTD. – CORNWALL

				CONTROL POINT 0100		
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE 1
1	COD	10.0	mg/L	97.8	298.8	68.0
2	Cyanide Total	0.005	mg/L	0.003	N/A	0.001
3	Hydrogen ion (pH)			6.5	10.2	6.4
4	Ammonia plus Ammonium	0.25	mg/L	0.31	2.44	0.05
4	Nitrate+Nitrite	0.25	mg/L	0.19	1.06	0.05
4	Total Kjeldahl nitrogen	0.5	mg/L	1.0	2.1	0.6
5	DOC	1.0	mg/L	5.9	13.5	4.9
5	TOC	5.0	mg/L	7.1	20.4	5.0
6	Total phosphorus	0.10	mg/L	0.17	1.02	1.00
7	Specific conductance	500.0	uS/cm	1744.3	6065.0	1032.0
8	Total suspended solids	5.0	mg/L	18.8	125.8	2.6
8	Volatile suspended solids	10.0	mg/L	11.0	N/A	0.9
9	Aluminum	30.0	ug/L	381.8	1447.8	490.0
9	Beryllium	10.0	ug/L	3.3	N/A	0.0
9	Cadmium	2.0	ug/L	0.9	1.4	0.2
9	Copper	10.0	ug/L	16.8	77.3	28.0
9	Molybdenum	20.0	ug/L	18.8	232.7	4.4
9	Nickel	20.0	ug/L	166.1	1083.7	16.0
9	Thallium	30.0	ug/L	13.4	N/A	30.0
9	Vanadium	30.0	ug/L	17.8	116.3	33.0
9	Zinc	10.0	ug/L	117.8	478.4	50.0
12	Mercury	0.1	ug/L	3.1	19.0	0.4
14	Phenolics (4AAP)	2.0	ug/L	1.0	3.2	3.4
15	Sulphide	20.0	ug/L	5304.1	142439.7	8800.0
16	Bromodichloromethane	0.8	ug/L	2.6	11.9	5.0
16	Carbon tetrachloride	1.3	ug/L	16877.4	167897.7	840.0
16	Chloroform	0.7	ug/L	89.4	322.6	40.0
16	Chloromethane	3.7	ug/L	73.8	943.3	1.0
16	Methylene chloride	1.3	ug/L	5.9	45.8	20.0
16	Tetrachloroethylene	1.1	ug/L	1.2	5.8	5.0
16	Trichloroethylene	1.9	ug/L	2.2	12.4	10.0
23	1,2,3–Trichlorobenzene	10.0	ng/L	11.2	187.5	1.0
23	Hexachlorobenzene	10.0	ng/L	41.6	523.8	1.0
23	Hexachlorobutadiene	10.0	ng/L	44.1	394.8	1.0
23	Hexachlorocyclopentadiene	10.0	ng/L	12.6	N/A	1.0
23	Hexachloroethane	10.0	ng/L	542.4	3669.5	1.0
25	Oil and grease	1.0	mg/L	4.7	21.8	3.0

EXPLANATORY NOTES:
(i) MOE data refers to Ministry Inspection Data.
(ii) Parameters for which either plant or MOE data were not available, are not listed.
(iii) LTA results are Twelve–Month Average Concentration Results.
(iv) "N/A" – no 99th percentile value calculated
(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.

Sampling Points
PR 0100 – Manhole 26 Effluent to River

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – COURTAULDS FIBRES CANADA – CORNWALL

				CONTROL POINT 0100				CONTROL POINT 0300				CONTROL POINT 0500			
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE 1	MOE 2	LTA	99th Per	MOE 1	MOE 2	LTA	99th Per	MOE 1	MOE 2
1	COD	10.0	mg/L	536.7	1140.9	722.0	732.0	810.0	1400.0	820.0	574.0	27.8	44.1	no data	30.0
2	Cyanide Total	0.005	mg/L	0.005	N/A	0.001	0.005	0.008	0.035	0.004	0.023	0.002	N/A	no data	0.001
3	Hydrogen Ion (pH)			2.1	3.3	1.9	1.9	11.5	12.1	11.5	11.5	6.3	N/A	no data	7.6
4	Ammonia plus Ammonium	0.25	mg/L	0.25	2.98	0.10	0.05	0.16	0.76	0.05	0.05	0.05	N/A	no data	0.05
4	Nitrate+Nitrite	0.25	mg/L	0.48	3.02	0.15	0.15	0.37	1.79	0.05	0.05	0.80	2.90	no data	0.05
4	Total Kjeldahl nitrogen	0.5	mg/L	0.6	5.6	0.7	0.8	1.2	6.8	0.9	0.8	0.4	N/A	no data	0.6
5	DOC	1.0	mg/L	210.0	367.7	178.0	202.5	80.2	251.4	115.0	62.5	6.5	18.5	no data	5.7
5	TOC	5.0	mg/L	210.9	376.2	267.0	224.0	97.7	274.9	no data	123.0	5.5	11.8	no data	9.0
6	Total phosphorus	0.10	mg/L	0.14	0.57	0.18	0.45	0.12	0.53	0.04	0.20	0.12	0.55	no data	0.14
7	Specific conductance	500.0	uS/cm	8376.7	123040.4	11860.0	11680.0	2026.7	9420.1	3420.0	2870.0	2126.7	15671.6	no data	630.0
8	Total suspended solids	5.0	mg/L	91.5	281.8	176.0	45.0	111.4	403.4	64.0	297.0	13.4	74.9	no data	11.9
8	Volatile suspended solids	10.0	mg/L	73.3	226.4	142.0	39.6	55.9	266.0	34.8	156.0	7.6	40.9	no data	5.4
9	Aluminum	30.0	ug/L	394.3	1171.5	280.0	200.0	205.7	926.5	590.0	220.0	178.7	1448.4	no data	380.0
9	Boron	50.0	ug/L	50.4	126.5	110.0	no data	41.0	79.7	1600.0	no data	28.8	74.6	no data	no data
9	Cadmium	2.0	ug/L	3.2	30.5	0.9	20.0	1.5	N/A	0.9	1.0	1.3	N/A	no data	0.6
9	Chromium	20.0	ug/L	115.5	491.8	49.0	63.0	49.4	280.0	27.0	64.0	16.7	64.4	no data	3.0
9	Copper	10.0	ug/L	61.2	133.0	68.0	34.0	26.2	113.9	110.0	27.0	32.3	196.2	no data	9.8
9	Lead	30.0	ug/L	238.0	518.7	150.0	130.0	91.9	198.9	130.0	81.0	11.8	39.8	no data	5.0
9	Nickel	20.0	ug/L	32.8	93.2	31.0	41.0	14.6	29.6	16.0	17.0	7.4	13.7	no data	9.0
9	Zinc	10.0	ug/L	52384.9	93805.0	48.0	4600.0	2459.9	10009.7	930.0	680.0	560.4	2519.2	no data	1300.0
10	Antimony	5.0	ug/L	7.3	N/A	6.0	5.0	1.8	N/A	4.0	2.0	2.0	N/A	no data	1.0
12	Mercury	0.10	ug/L	10.26	48.08	1.84	2.72	4.73	20.95	3.31	3.59	0.27	0.96	no data	0.25
14	Phenolics (4AAP)	2.0	ug/L	17.4	55.5	98.4	12.8	18.6	391.9	73.8	7.0	2.5	29.9	no data	2.0
15	Sulphide	20.0	ug/L	29656.4	139665.6	5300.0	8000.0	94172.1	234439.4	6000.0	no data	4029.7	24923.3	2290.0	3200.0
16	1,2-Dichloroethane	0.8	ug/L	1.1	N/A	0.2	0.5	1.1	N/A	0.2	0.5	1.1	N/A	no data	0.5
16	Chloroform	0.7	ug/L	31.9	367.2	8.0	20.0	15.6	181.8	15.0	5.0	1.6	N/A	4.0	1.0
16	Methylene chloride	1.3	ug/L	1.1	N/A	7.0	0.5	3.8	N/A	9.0	0.5	1.9	N/A	no data	0.5
17	Toluene	0.5	ug/L	1.1	5.2	2.0	0.2	1.2	13.8	1.5	0.2	0.8	6.6	no data	0.2
19	Diphenyl ether	0.4	ug/L	0.5	N/A	2.0	0.2	0.5	N/A	2.0	0.2	0.3	N/A	no data	0.2
20	Phenol	2.4	ug/L	2.1	6.1	1.0	1.8	1.6	5.0	1.0	1.4	0.8	N/A	no data	0.2
25	Oil and grease	1.0	mg/L	100.7	784.3	130.0	75.0	62.1	393.2	8.0	10.0	1.9	11.3	1.0	1.0

EXPLANATORY NOTES:

(i) MOE data refers to Ministry Inspection Data.
(ii) Parameters for which either plant or MOE data were not available, are not listed.
(iii) LTA results are Twelve-Month Average Concentration Results.
(iv) "N/A" – no 99th percentile value calculated
(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.

Sampling Points

PR 0100 Acid Sewer to River
PR 0300 Alkaline Sewer to River
CO 0500 Storm Sewer to River
CO 0600 Acid Recovery Sewer to River
CO 0700 CS2 Sewer to River
CO 0800 Caravelle Sewer to River

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – COURTAULDS FIBRES CANADA – CORNWALL

				CONTROL POINT 0600				CONTROL POINT 0700				CONTROL POINT 0600			
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE 1	MOE 2	LTA	99th Per	MOE 1	MOE 2	LTA	99th Per	MOE 1	MOE 2
1	COD	10.0	mg/L	16.0	43.0	10.0	22.0	16.9	N/A	13.0	26.0	130.5	460.0	14.0	14.0
2	Cyanide Total	0.005	mg/L	0.002	N/A	0.002	0.001	0.002	N/A	0.001	0.001	0.002	N/A	0.001	0.001
3	Hydrogen Ion (pH)			7.4	8.5	7.3	7.2	7.1	7.9	7.1	7.2	7.1	7.8	7.1	7.4
4	Ammonia plus Ammonium	0.25	mg/L	0.15	2.60	0.05	0.05	0.11	1.45	0.05	0.05	0.10	1.04	0.05	0.05
4	Nitrate+ Nitrite	0.25	mg/L	0.63	6.08	0.15	0.15	0.41	2.44	0.15	0.10	0.32	1.19	0.15	0.15
4	Total Kjeldahl nitrogen	0.5	mg/L	0.2	2.7	0.3	0.4	0.2	2.6	0.4	0.5	0.3	N/A	0.3	0.4
5	DOC	1.0	mg/L	4.9	12.6	3.6	3.9	5.0	12.5	4.5	3.8	5.1	12.5	4.2	3.5
5	TOC	5.0	mg/L	4.3	11.9	7.0	6.0	4.1	6.9	7.0	6.0	3.9	5.6	6.0	4.0
6	Total phosphorus	0.10	mg/L	0.08	0.37	0.02	0.04	0.10	2.10	0.04	0.08	0.08	0.47	0.04	0.04
7	Specific conductance	500.0	uS/cm	800.0	2255.4	1025.0	809.0	583.3	1044.3	590.0	546.0	523.3	737.2	544.0	520.0
8	Total suspended solids	5.0	mg/L	8.8	42.9	2.5	8.4	7.2	25.7	14.0	7.8	7.2	26.7	2.6	3.5
8	Volatile suspended solids	10.0	mg/L	6.7	30.4	0.4	4.4	6.5	23.5	3.9	3.5	6.0	15.4	2.6	1.7
9	Aluminum	30.0	ug/L	89.7	547.9	87.0	150.0	110.5	564.5	85.0	110.0	96.8	439.1	69.0	140.0
9	Boron	50.0	ug/L	27.2	49.3	200.0	no data	26.3	44.2	52.0	no data	32.0	108.0	15.0	no data
9	Cadmium	2.0	ug/L	1.3	N/A	0.6	0.2	1.3	N/A	1.0	0.2	1.3	N/A	1.1	0.8
9	Chromium	20.0	ug/L	5.9	28.5	1.0	1.0	4.9	15.0	3.0	1.0	8.5	41.9	1.0	1.0
9	Copper	10.0	ug/L	24.1	250.0	0.5	12.0	8.6	63.8	31.0	9.7	7.0	31.7	5.5	11.0
9	Lead	30.0	ug/L	12.0	53.2	17.0	5.0	12.0	N/A	31.0	5.0	13.5	40.4	15.0	5.0
9	Nickel	20.0	ug/L	7.2	24.0	3.0	5.0	6.3	N/A	2.0	11.0	8.0	22.2	6.0	5.0
9	Zinc	10.0	ug/L	1242.6	3642.5	1200.0	1500.0	1489.6	4811.4	2000.0	1400.0	1410.5	3746.5	1600.0	1300.0
10	Antimony	5.0	ug/L	1.4	N/A	1.0	1.0	2.0	N/A	no data	1.0	2.0	N/A	1.0	1.0
12	Mercury	0.10	ug/L	0.18	0.53	0.05	0.05	0.18	1.00	0.03	0.05	0.14	1.00	0.02	0.03
14	Phenolics (4AAP)	2.0	ug/L	3.7	17.4	7.6	2.2	3.1	12.8	8.2	3.2	3.6	12.2	6.0	2.2
15	Sulphide	20.0	ug/L	1097.3	3325.7	866.0	1100.0	1628.3	4360.1	1512.0	1800.0	1308.7	3378.4	1269.0	1800.0
16	1,2-Dichloroethane	0.8	ug/L	1.1	N/A	0.5	0.5	1.4	N/A	0.5	0.5	1.1	N/A	0.5	0.5
16	Chloroform	0.7	ug/L	1.2	N/A	0.6	0.8	1.3	N/A	0.5	0.4	1.3	N/A	0.6	0.4
16	Methylene chloride	1.3	ug/L	1.7	N/A	1.5	0.5	2.0	N/A	1.3	0.5	2.3	N/A	0.5	0.5
17	Toluene	0.5	ug/L	2.7	N/A	0.2	0.2	6.0	N/A	0.2	0.2	4.9	N/A	0.2	0.2
19	Diphenyl ether	0.4	ug/L	0.3	N/A	2.0	0.2	0.3	N/A	2.0	0.2	0.3	N/A	2.0	0.2
20	Phenol	2.4	ug/L	0.7	N/A	1.0	0.2	0.7	N/A	1.0	1.0	0.7	N/A	1.0	0.2
25	Oil and grease	1.0	mg/L	1.7	8.4	1.0	no data	1.8	8.9	no data	1.0	3.6	28.4	no data	1.0

EXPLANATORY NOTES:
(i) MOE data refers to Ministry Inspection Data.
(ii) Parameters for which either plant or MOE data were not available, are not listed.
(iii) LTA results are Twelve-Month Average Concentration Results.
(iv) "N/A" – no 99th percentile value calculated
(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.

Sampling Points
PR 0100 Acid Sewer to River
PR 0300 Alkaline Sewer to River
CO 0500 Storm Sewer to River
CO 0600 Acid Recovery Sewer to River
CO 0700 CS2 Sewer to River
CO 0800 Caravelle Sewer to River

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – DOW CHEMICAL CANADA INC. – SARNIA

				CONTROL POINT 0200			CONTROL POINT 0500			CONTROL POINT 0600		
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE	LTA	99th Per	MOE	LTA	99th Per	MOE
1	COD	10.0	mg/L	6.2	N/A	8.0	7.9	N/A	8.0	11.4	N/A	6.0
2	Cyanide Total	0.005	mg/L	0.005	N/A	0.001	0.005	N/A	0.001	0.005	N/A	0.001
3	Hydrogen Ion (pH)			8.1	8.5	8.1	8.2	8.5	8.2	8.1	8.4	8.1
4	Ammonia plus Ammonium	0.25	mg/L	0.03	0.03	0.05	0.09	0.30	0.05	0.03	N/A	0.05
4	Nitrate+Nitrite	0.25	mg/L	0.28	0.36	0.35	0.36	0.49	0.50	0.28	0.41	0.35
4	Total Kjeldahl nitrogen	0.5	mg/L	0.6	3.0	0.1	1.0	7.8	0.1	0.5	2.1	0.1
5	DOC	1.0	mg/L	2.3	4.6	1.4	2.3	4.3	1.3	2.3	4.2	1.5
5	TOC	5.0	mg/L	2.0	3.3	3.0	2.1	3.3	2.0	2.2	3.6	3.0
6	Total phosphorus	0.10	mg/L	0.07	0.74	0.02	0.05	0.18	0.78	0.06	0.46	0.02
7	Specific conductance	500.0	uS/cm	206.4	240.4	224.0	881.6	1938.9	1246.0	212.9	341.7	231.0
8	Total suspended solids	5.0	mg/L	5.5	30.6	4.6	5.4	24.2	7.0	6.7	45.6	3.8
8	Volatile suspended solids	10.0	mg/L	3.0	N/A	1.6	3.0	N/A	2.2	3.0	N/A	1.9
9	Aluminum	30.0	ug/L	56.0	168.8	79.0	102.3	431.7	78.0	35.0	93.0	67.0
9	Boron	50.0	ug/L	9.3	N/A	2.0	9.5	N/A	2.0	9.3	10.0	2.0
9	Chromium	20.0	ug/L	5.8	N/A	1.0	3.3	N/A	1.0	4.5	N/A	6.0
9	Copper	10.0	ug/L	10.3	N/A	6.5	3.5	N/A	0.2	3.0	N/A	1.2
9	Lead	30.0	ug/L	24.0	N/A	6.0	24.0	N/A	11.0	24.0	N/A	7.0
9	Molybdenum	20.0	ug/L	18.0	N/A	1.0	18.8	N/A	1.6	18.3	N/A	1.6
9	Nickel	20.0	ug/L	6.0	N/A	3.0	6.0	N/A	4.0	6.0	N/A	2.9
9	Vanadium	30.0	ug/L	15.5	20.3	2.8	14.0	30.6	1.5	16.3	23.0	1.9
9	Zinc	10.0	ug/L	3.0	N/A	2.8	3.3	N/A	7.8	3.0	N/A	2.8
12	Mercury	0.10	ug/L	0.09	N/A	0.03	0.13	0.95	0.07	0.09	0.20	0.02
14	Phenolics (4AAP)	2.0	ug/L	5.6	28.8	0.4	7.0	102.9	0.4	4.9	20.5	0.4
15	Sulphide	20.0	ug/L	42.5	79.9	2.0	45.0	168.3	2.0	30.0	40.0	2.0
16	1,1,2,2–Tetrachloroethane	4.3	ug/L	0.8	N/A	1.0	0.9	N/A	1.0	0.9	N/A	1.0
16	1,1,2–Trichloroethane	0.6	ug/L	0.7	3.9	0.2	0.4	N/A	0.2	1.3	18.9	0.4
16	1,1–Dichloroethane	0.8	ug/L	1.4	9.7	0.5	0.4	N/A	0.5	0.5	N/A	0.5
16	1,1–Dichloroethylene	2.8	ug/L	0.6	2.3	0.5	0.5	N/A	0.5	0.5	N/A	0.5
16	1,2–Dichloroethane	0.8	ug/L	11.7	43.4	10.0	0.5	N/A	2.0	8.4	82.0	3.0
16	1,2–Dichloropropane	0.9	ug/L	4.8	59.6	8.0	4.3	30.5	7.0	6.9	22.4	9.0
16	Bromodichloromethane	0.8	ug/L	0.3	N/A	10.0	0.3	N/A	2.0	0.3	N/A	2.0
16	Bromoform	3.7	ug/L	0.6	N/A	1.0	0.6	N/A	1.0	0.6	N/A	1.0
16	Carbon tetrachloride	1.3	ug/L	33.4	250.3	8.0	1.2	1.6	0.2	1.7	5.8	0.7
16	Chloroform	0.7	ug/L	1.8	8.7	2.0	0.7	N/A	1.0	0.6	1.2	3.0
16	Chloromethane	3.7	ug/L	8.0	52.0	75.0	12.7	109.1	70.0	11.8	118.8	90.0
16	Cis–1,3–Dichloropropylene	1.4	ug/L	1.1	10.8	1.0	0.5	N/A	1.0	0.5	N/A	1.0
16	Dibromochloromethane	1.1	ug/L	0.5	N/A	0.5	0.5	N/A	0.5	0.5	N/A	0.5
16	Methylene chloride	1.3	ug/L	0.8	6.0	2.0	0.5	N/A	5.0	3.9	18.2	5.0
16	Tetrachloroethylene	1.1	ug/L	40.9	200.0	35.0	3.1	10.6	3.0	1.7	6.8	0.5
16	Trichloroethylene	1.9	ug/L	3.5	11.7	1.0	0.5	N/A	1.0	0.6	N/A	1.0
16	Vinyl chloride	4.0	ug/L	1.5	12.1	1.0	1.0	N/A	1.0	1.1	N/A	1.0

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – DOW CHEMICAL CANADA INC. – SARNIA

				CONTROL POINT 0200			CONTROL POINT 0500			CONTROL POINT 0600		
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE	LTA	99th Per	MOE	LTA	99th Per	MOE
17	Benzene	0.5	ug/L	0.3	N/A	0.2	0.2	N/A	0.6	0.4	2.8	0.6
17	Ethylbenzene	0.6	ug/L	0.3	N/A	0.2	0.2	N/A	0.2	0.4	N/A	0.2
17	Styrene	0.5	ug/L	0.4	N/A	0.2	0.3	N/A	0.5	0.4	N/A	0.4
17	m–Xylene and p–Xylene	1.1	ug/L	0.7	N/A	0.5	0.5	N/A	0.5	0.7	N/A	0.5
17	o–Xylene	0.5	ug/L	0.4	N/A	0.2	0.3	N/A	0.2	0.4	N/A	0.2
19	2,6–Dinitrotoluene	0.7	ug/L	1.7	N/A	0.5	1.1	N/A	5.0	0.7	N/A	5.0
19	2–Chloronaphthalene	1.8	ug/L	1.5	N/A	0.2	1.5	N/A	0.2	1.5	N/A	0.2
19	Benzylbutylphthalate	0.6	ug/L	0.1	N/A	0.5	0.2	N/A	0.5	0.1	N/A	0.5
19	Biphenyl	0.6	ug/L	1.0	N/A	0.2	1.0	N/A	0.2	1.0	N/A	0.2
19	Bis(2–chloroethyl)ether	4.4	ug/L	1.4	N/A	0.5	1.4	N/A	0.5	1.4	N/A	0.5
19	Bis(2–chloroisopropyl)ether	2.2	ug/L	1.2	N/A	0.2	6.8	N/A	0.2	2.2	8.0	0.2
19	Bis(2–ethylhexyl) phthalate	2.2	ug/L	0.5	2.0	1.0	0.7	2.4	1.0	1.0	2.8	1.0
19	Di–n–butyl phthalate	3.8	ug/L	1.4	N/A	0.2	1.4	N/A	0.2	2.2	N/A	0.2
19	N–Nitrosodi–n–propylamine	3.1	ug/L	1.0	N/A	0.5	0.9	N/A	0.5	0.9	N/A	0.5
19	Naphthalene	1.6	ug/L	1.2	N/A	0.2	1.2	N/A	0.2	1.2	N/A	0.2
20	2,3,4,5–Tetrachlorophenol	0.4	ug/L	0.5	N/A	0.2	0.5	N/A	0.2	0.5	N/A	0.2
20	2,3,4–Trichlorophenol	0.6	ug/L	0.5	N/A	0.2	0.5	N/A	0.2	0.5	N/A	0.2
20	Phenol	2.4	ug/L	2.4	N/A	0.2	2.4	N/A	0.2	2.4	N/A	0.2
23	1,2,4,5–Tetrachlorobenzene	10.0	ng/L	7.0	N/A	1.0	7.0	N/A	1.0	7.0	N/A	1.0
23	1,2,4–Trichlorobenzene	10.0	ng/L	157.3	576.2	2.0	23.2	84.2	2.0	30.6	141.9	2.0
23	2,4,5–Trichlorotoluene	10.0	ng/L	77.9	N/A	1.0	9.8	N/A	1.0	10.3	N/A	1.0
23	Hexachlorobenzene	10.0	ng/L	30.8	147.7	1.0	8.9	62.5	1.0	3.9	8.1	1.0
23	Hexachlorobutadiene	10.0	ng/L	106.1	N/A	14.0	10.8	N/A	1.0	16.8	N/A	5.0
23	Hexachlorocyclopentadiene	10.0	ng/L	5.0	N/A	1.0	5.0	N/A	1.0	5.0	N/A	1.0
23	Hexachloroethane	10.0	ng/L	96.1	379.9	9.0	7.9	17.0	1.0	6.8	14.1	4.0
23	Octachlorostyrene	10.0	ng/L	15.2	65.2	1.0	10.3	33.2	1.0	9.7	14.9	1.0
25	Oil and grease	1.0	mg/L	1.3	4.2	3.0	1.2	3.9	1.0	1.2	4.0	2.0

EXPLANATORY NOTES:
(i) MOE data refers to Ministry Inspection Data.
(ii) Parameters for which either plant or MOE data were not available, are not listed.
(iii) LTA results are Twelve–Month Average Concentration Results.
(iv) "N/A" – no 99th percentile value calculated
(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.

Sampling Points

CO 0200 – 42 inch Outfall to River
CO 0500 – 54 inch Outfall to River
CO 0600 – 2nd Street Outfall to River
CO 0700 – 3rd Street Outfall to River
CO 0900 – 4th Street Outfall to River
PR 1200 – Throx Stripper Effluent flows into CO 0500
PR 1600 – Tank Car Wash (Building 88) flows into CO 0900
PR 1700 – Block 90 Feed (Buildings 35 & 39) flows into CO 0900
PR 1900 – Blox Plant Effluent flows into CO 0900
PR 2000 – Boiler Feedwater Effluent flows into CO 0900
PR 2100 – Scott Road Treated Runoff to River

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – DOW CHEMICAL CANADA INC. – SARNIA

				CONTROL POINT 0700			CONTROL POINT 0900			CONTROL POINT 1200			
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE	LTA	99th Per	MOE	LTA	99th Per	MOE 1	MOE 2
1	COD	10.0	mg/L	19.4	N/A	4.0	13.8	32.1	12.0	76.3	98.0	58.0	8.0
2	Cyanide Total	0.005	mg/L	0.005	N/A	0.002	0.005	N/A	0.002	0.006	N/A	0.001	0.001
3	Hydrogen ion (pH)			8.1	8.5	8.1	8.1	8.7	8.2	7.6	8.5	7.9	7.9
4	Ammonia plus Ammonium	0.25	mg/L	0.03	0.08	0.05	0.03	0.04	0.05	0.03	0.03	0.05	0.05
4	Nitrate+Nitrite	0.25	mg/L	0.30	0.40	0.35	0.29	0.45	0.30	3.89	26.48	2.20	0.40
4	Total Kjeldahl nitrogen	0.5	mg/L	0.6	3.7	0.1	0.5	2.3	0.1	0.6	2.7	0.1	0.2
5	DOC	1.0	mg/L	2.1	4.0	1.4	2.4	4.0	0.7	2.4	5.0	1.6	1.5
5	TOC	5.0	mg/L	2.0	3.6	2.0	2.3	3.3	2.0	2.2	4.6	4.0	4.0
6	Total phosphorus	0.10	mg/L	0.09	1.23	0.34	0.11	1.61	0.14	0.07	0.36	0.02	0.02
7	Specific conductance	500.0	uS/cm	204.7	241.9	224.0	2373.1	5350.4	2450.0	13814.9	23736.5	13200.0	11690.0
8	Total suspended solids	5.0	mg/L	5.8	30.8	4.9	5.5	25.2	5.6	8.5	29.7	10.0	7.6
8	Volatile suspended solids	10.0	mg/L	3.0	N/A	1.7	3.0	N/A	2.5	3.8	N/A	4.0	3.7
9	Aluminum	30.0	ug/L	25.0	50.0	56.0	58.3	240.9	79.0	34.8	121.9	39.0	130.0
9	Boron	50.0	ug/L	9.8	12.0	0.0	9.5	N/A	2.0	16.4	N/A	2.0	no data
9	Chromium	20.0	ug/L	3.0	N/A	1.0	6.0	N/A	2.0	5.8	N/A	36.0	2.0
9	Copper	10.0	ug/L	3.3	N/A	0.2	7.0	N/A	0.2	12.2	68.5	0.2	11.0
9	Lead	30.0	ug/L	24.0	N/A	8.0	36.0	N/A	5.0	35.0	N/A	39.0	33.0
9	Molybdenum	20.0	ug/L	18.0	N/A	0.5	124.5	N/A	0.5	65.4	N/A	1.3	6.7
9	Nickel	20.0	ug/L	6.0	N/A	5.0	18.0	N/A	4.0	17.0	N/A	5.0	15.0
9	Vanadium	30.0	ug/L	15.8	20.1	1.3	4.5	N/A	2.4	4.1	N/A	3.3	2.5
9	Zinc	10.0	ug/L	3.0	N/A	3.6	144.8	N/A	3.6	13.5	195.9	2.0	64.0
12	Mercury	0.10	ug/L	0.09	0.20	0.02	0.09	0.12	0.02	0.09	N/A	0.05	0.03
14	Phenolics (4AAP)	2.0	ug/L	7.1	35.2	0.4	10.0	42.3	0.2	5.6	23.0	0.4	0.2
15	Sulphide	20.0	ug/L	37.5	101.9	2.0	35.0	83.1	2.0	65.0	179.9	2.0	2.0
16	1,1,2,2–Tetrachloroethane	4.3	ug/L	0.8	N/A	1.0	0.8	N/A	1.0	0.7	N/A	1.0	1.0
16	1,1,2–Trichloroethane	0.6	ug/L	0.3	N/A	0.2	0.3	N/A	0.2	0.2	N/A	0.2	0.2
16	1,1–Dichloroethane	0.8	ug/L	0.3	N/A	0.5	0.3	N/A	0.5	0.2	N/A	0.5	0.5
16	1,1–Dichloroethylene	2.8	ug/L	0.5	N/A	0.5	0.5	N/A	0.5	0.4	N/A	0.5	0.5
16	1,2–Dichloroethane	0.8	ug/L	0.6	N/A	0.5	1.2	5.9	1.0	0.5	N/A	0.5	0.5
16	1,2–Dichloropropane	0.9	ug/L	0.3	N/A	1.0	1.2	N/A	1.0	58.4	N/A	1.0	1.0
16	Bromodichloromethane	0.8	ug/L	0.3	N/A	0.5	0.3	N/A	0.5	4.5	103.1	0.5	0.5
16	Bromoform	3.7	ug/L	0.6	N/A	1.0	0.6	N/A	1.0	6.9	32.8	1.0	1.0
16	Carbon tetrachloride	1.3	ug/L	1.5	9.7	0.5	1.3	N/A	0.5	0.9	N/A	0.5	0.5
16	Chloroform	0.7	ug/L	0.6	N/A	1.0	0.6	N/A	1.0	2.2	11.6	3.0	0.5
16	Chloromethane	3.7	ug/L	12.0	34.5	90.0	10.0	17.2	70.0	1.2	N/A	1.0	1.0
16	Cis–1,3–Dichloropropylene	1.4	ug/L	0.5	N/A	1.0	0.6	2.1	1.0	0.5	N/A	1.0	1.0
16	Dibromochloromethane	1.1	ug/L	0.5	N/A	0.5	0.5	N/A	0.5	11.3	443.1	0.5	0.5
16	Methylene chloride	1.3	ug/L	0.5	N/A	1.0	0.5	N/A	1.0	4.3	47.0	0.5	0.5
16	Tetrachloroethylene	1.1	ug/L	0.8	1.6	0.5	0.8	2.5	0.5	0.9	N/A	0.5	0.5
16	Trichloroethylene	1.9	ug/L	0.5	N/A	1.0	0.5	N/A	1.0	0.4	N/A	1.0	1.0
16	Vinyl chloride	4.0	ug/L	2.0	18.8	1.0	1.7	N/A	1.0	0.7	N/A	1.0	1.0

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – DOW CHEMICAL CANADA INC. – SARNIA

				CONTROL POINT 0700			CONTROL POINT 0900			CONTROL POINT 1200			
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE	LTA	99th Per	MOE	LTA	99th Per	MOE 1	MOE 2
17	Benzene	0.5	ug/L	0.3	1.2	0.8	1.2	62.5	0.8	0.3	3.0	0.2	0.2
17	Ethylbenzene	0.6	ug/L	0.5	3.7	1.0	3.7	37.1	1.0	0.5	N/A	0.2	0.2
17	Styrene	0.5	ug/L	0.5	3.1	0.4	0.7	N/A	0.8	0.4	N/A	0.2	0.2
17	m–Xylene and p–Xylene	1.1	ug/L	0.8	N/A	0.5	0.7	N/A	0.5	0.9	N/A	0.5	0.5
17	o–Xylene	0.5	ug/L	0.4	N/A	0.2	0.4	N/A	0.2	0.4	N/A	0.2	0.2
19	2,6–Dinitrotoluene	0.7	ug/L	2.0	N/A	5.0	1.2	N/A	0.5	0.5	N/A	0.5	0.5
19	2–Chloronaphthalene	1.8	ug/L	1.5	N/A	0.2	1.5	N/A	0.2	1.8	N/A	0.2	0.2
19	Benzylbutylphthalate	0.6	ug/L	0.1	N/A	0.5	0.1	N/A	0.5	0.1	N/A	0.5	0.5
19	Biphenyl	0.6	ug/L	1.0	N/A	0.2	1.0	N/A	0.2	1.1	N/A	0.2	0.2
19	Bis(2–chloroethyl)ether	4.4	ug/L	1.4	N/A	0.5	1.4	N/A	0.5	1.4	N/A	0.5	0.5
19	Bis(2–chloroisopropyl)ether	2.2	ug/L	1.2	N/A	0.2	3.1	N/A	0.2	54.7	N/A	0.2	0.6
19	Bis(2–ethylhexyl) phthalate	2.2	ug/L	0.6	N/A	1.0	0.3	0.7	1.0	0.5	1.3	1.0	2.0
19	Di–n–butyl phthalate	3.8	ug/L	1.4	N/A	0.2	1.4	N/A	0.2	1.4	N/A	1.8	0.6
19	N–Nitrosodi–n–propylamine	3.1	ug/L	0.9	N/A	0.5	0.9	N/A	0.5	0.9	N/A	0.5	0.5
19	Naphthalene	1.6	ug/L	1.2	N/A	0.2	1.4	N/A	2.0	1.5	N/A	0.2	0.2
20	2,3,4,5–Tetrachlorophenol	0.4	ug/L	0.5	N/A	0.2	0.1	N/A	0.2	0.1	N/A	0.2	0.2
20	2,3,4–Trichlorophenol	0.6	ug/L	0.5	N/A	0.2	0.5	N/A	0.2	0.5	N/A	0.2	0.2
20	Phenol	2.4	ug/L	2.4	N/A	0.2	0.6	N/A	0.2	0.9	N/A	0.2	0.2
23	1,2,4,5–Tetrachlorobenzene	10.0	ng/L	7.0	N/A	1.0	7.5	N/A	1.0	8.3	N/A	1.0	1.0
23	1,2,4–Trichlorobenzene	10.0	ng/L	13.3	39.2	2.0	7.0	35.4	1.0	7.3	184.0	1.0	1.0
23	2,4,5–Trichlorotoluene	10.0	ng/L	9.0	N/A	1.0	14.1	N/A	2.0	23.6	N/A	2.0	2.0
23	Hexachlorobenzene	10.0	ng/L	3.6	8.5	1.0	12.8	4.0	1.0	7.7	290.7	1.0	1.0
23	Hexachlorobutadiene	10.0	ng/L	6.2	N/A	4.0	3.2	N/A	1.0	18.2	N/A	1.0	1.0
23	Hexachlorocyclopentadiene	10.0	ng/L	5.0	N/A	1.0	8.5	N/A	4.0	4.3	N/A	1.0	1.0
23	Hexachloroethane	10.0	ng/L	5.2	N/A	2.0	5.5	17.0	1.0	5.1	N/A	1.0	1.0
23	Octachlorostyrene	10.0	ng/L	11.4	34.0	1.0	6.1	N/A	4.0	4.3	N/A	1.0	1.0
25	Oil and grease	1.0	mg/L	1.1	3.2	2.0	5.0	2.2	1.0	14.8	3.1	1.0	1.0

EXPLANATORY NOTES:
(i) MOE data refers to Ministry Inspection Data.
(ii) Parameters for which either plant or MOE data were not available, are not listed.
(iii) LTA results are Twelve–Month Average Concentration Results.
(iv) "N/A" – no 99th percentile value calculated
(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.

Sampling Points

CO 0200 – 42 Inch Outfall to River
CO 0500 – 54 Inch Outfall to River
CO 0600 – 2nd Street Outfall to River
CO 0700 – 3rd Street Outfall to River
CO 0900 – 4th Street Outfall to River
PR 1200 – Throx Stripper Effluent flows into CO 0500
PR 1600 – Tank Car Wash (Building 88) flows into CO 0900
PR 1700 – Block 90 Feed (Buildings 35 & 39) flows into CO 0900
PR 1900 – Blox Plant Effluent flows into CO 0900
PR 2000 – Boiler Feedwater Effluent flows into CO 0900
PR 2100 – Scott Road Treated Runoff to River

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – DOW CHEMICAL CANADA INC. – SARNIA

				CONTROL POINT 1600			CONTROL POINT 1700			CONTROL POINT 1900		
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE	LTA	99th Per	MOE	LTA	99th Per	MOE
1	COD	10.0	mg/L	30.9	N/A	6.0	53.3	101.6	24.0	1722.5	3782.4	52.0
2	Cyanide Total	0.005	mg/L	0.005	N/A	0.001	0.005	N/A	0.001	0.005	N/A	0.001
3	Hydrogen Ion (pH)			11.0	12.8	12.0	7.7	9.6	7.6	7.5	8.7	7.7
4	Ammonia plus Ammonium	0.25	mg/L	0.03	N/A	0.05	0.04	0.15	0.05	2.87	2.60	0.05
4	Nitrate+Nitrite	0.25	mg/L	0.21	1.17	0.50	0.30	0.55	0.30	0.03	0.31	0.05
4	Total Kjeldahl nitrogen	0.5	mg/L	0.5	2.4	0.1	0.7	4.0	0.1	1.5	9.0	1.3
5	DOC	1.0	mg/L	5.5	18.4	1.8	7.7	24.6	2.9	4.9	14.4	5.6
5	TOC	5.0	mg/L	5.2	104.0	3.0	7.7	26.3	8.0	5.7	17.2	51.0
6	Total phosphorus	0.10	mg/L	8.14	97.00	0.02	0.10	1.17	0.02	0.29	1.80	1.00
7	Specific conductance	500.0	uS/cm	5800.4	60822.5	4805.0	11705.4	33069.8	12640.0	88331.9	120518.0	91700.0
8	Total suspended solids	5.0	mg/L	75.6	478.0	70.0	22.6	94.7	14.0	34.1	199.8	32.0
8	Volatile suspended solids	10.0	mg/L	22.3	92.0	29.0	11.5	26.8	3.7	14.7	33.4	15.2
9	Aluminum	30.0	ug/L	184.1	1912.7	32.0	129.9	973.4	180.0	415.5	2490.5	1500.0
9	Boron	50.0	ug/L	26.8	256.2	2.0	63.5	1771.6	2.0	49.3	1074.3	3.5
9	Chromium	20.0	ug/L	44.4	293.4	3.0	11.4	49.0	7.0	5.9	16.9	1.0
9	Copper	10.0	ug/L	71.8	1032.4	3.3	24.8	160.1	61.0	9.9	42.2	1.5
9	Lead	30.0	ug/L	82.3	N/A	5.0	73.0	N/A	15.0	35.0	N/A	6.0
9	Molybdenum	20.0	ug/L	49.7	938.2	0.5	67.0	N/A	5.2	35.9	465.9	3.9
9	Nickel	20.0	ug/L	86.5	718.3	7.0	145.4	2533.0	190.0	42.5	283.0	12.0
9	Vanadium	30.0	ug/L	6.8	38.5	2.5	4.8	9.6	6.5	7.5	N/A	1.1
9	Zinc	10.0	ug/L	129.5	2735.8	11.0	182.8	1628.8	310.0	31.6	342.3	2.8
12	Mercury	0.10	ug/L	0.13	N/A	0.02	0.11	0.32	0.03	0.73	43.11	0.05
14	Phenolics (4AAP)	2.0	ug/L	2.3	N/A	0.2	8.1	29.6	0.2	32.1	242.1	4.8
15	Sulphide	20.0	ug/L	475.0	1800.0	2.0	40.0	82.2	2.0	112.5	270.0	34.0
16	1,1,2,2–Tetrachloroethane	4.3	ug/L	0.6	N/A	1.0	15.9	463.6	40.0	0.7	N/A	1.0
16	1,1,2–Trichloroethane	0.6	ug/L	0.2	N/A	0.2	124.2	920.6	85.0	0.2	N/A	0.2
16	1,1–Dichloroethane	0.8	ug/L	0.2	1.0	0.5	246.5	3391.8	380.0	0.2	N/A	0.5
16	1,1–Dichloroethylene	2.8	ug/L	3.9	96.5	0.5	22.0	134.0	15.0	1.5	32.3	0.5
16	1,2–Dichloroethane	0.8	ug/L	1.1	18.1	0.5	1070.0	7664.8	2360.0	3.4	14.2	12.0
16	1,2–Dichloropropane	0.9	ug/L	0.2	0.8	1.0	38.6	674.5	7.0	26.8	121.3	15.0
16	Bromodichloromethane	0.8	ug/L	2.8	46.7	2.0	2.6	N/A	40.0	0.3	1.4	0.5
16	Bromoform	3.7	ug/L	0.6	5.2	1.0	7.5	103.8	1.0	0.4	N/A	1.0
16	Carbon tetrachloride	1.3	ug/L	140.1	1072.6	70.0	15.3	804.0	7.0	0.9	N/A	0.5
16	Chloroform	0.7	ug/L	51.1	241.8	75.0	8.6	115.1	10.0	0.4	1.4	1.0
16	Chloromethane	3.7	ug/L	1.4	5.7	1.0	1.1	N/A	30.0	1.3	N/A	1.0
16	Cis–1,3–Dichloropropylene	1.4	ug/L	1.2	N/A	1.0	4.5	250.8	1.0	0.5	1.9	1.0
16	Dibromochloromethane	1.1	ug/L	3.8	47.8	0.5	7.5	N/A	0.5	0.4	0.9	0.5
16	Methylene chloride	1.3	ug/L	3.8	302.1	0.5	42.2	621.3	30.0	4.9	N/A	0.5
16	Tetrachloroethylene	1.1	ug/L	303.8	2031.2	140.0	73.5	598.3	30.0	1.1	N/A	0.5
16	Trichloroethylene	1.9	ug/L	0.6	3.3	6.0	27.6	188.8	1.0	0.4	N/A	1.0
16	Vinyl chloride	4.0	ug/L	0.7	2.3	1.0	47.2	1346.5	25.0	0.7	N/A	1.0

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – DOW CHEMICAL CANADA INC. – SARNIA

				CONTROL POINT 1600			CONTROL POINT 1700			CONTROL POINT 1900		
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE	LTA	99th Per	MOE	LTA	99th Per	MOE
17	Benzene	0.5	ug/L	0.1	N/A	0.2	0.1	N/A	0.2	1.4	22.2	0.2
17	Ethylbenzene	0.6	ug/L	2.2	35.0	2.0	0.1	N/A	2.0	0.8	6.8	2.0
17	Styrene	0.5	ug/L	0.2	N/A	0.7	0.1	N/A	0.2	0.9	6.0	0.5
17	m–Xylene and p–Xylene	1.1	ug/L	7.1	N/A	1.0	0.2	N/A	0.5	1.1	2.4	0.5
17	o–Xylene	0.5	ug/L	3.0	N/A	1.0	0.1	N/A	0.2	0.9	6.0	0.2
19	2,6–Dinitrotoluene	0.7	ug/L	1.0	N/A	0.5	0.6	N/A	0.5	0.7	N/A	0.5
19	2–Chloronaphthalene	1.8	ug/L	1.1	N/A	0.2	1.5	N/A	0.2	1.6	N/A	0.2
19	Benzylbutylphthalate	0.6	ug/L	1.0	N/A	0.5	0.1	N/A	0.5	0.1	N/A	0.5
19	Biphenyl	0.6	ug/L	1.0	N/A	0.2	1.0	N/A	0.2	1.1	N/A	0.2
19	Bis(2–chloroethyl)ether	4.4	ug/L	375.3	N/A	0.5	1.4	N/A	0.5	15.8	116.6	0.5
19	Bis(2–chloroisopropyl)ether	2.2	ug/L	1.6	N/A	0.2	5.8	19.4	0.2	66.6	91.1	0.2
19	Bis(2–ethylhexyl) phthalate	2.2	ug/L	6.2	139.9	1.0	0.7	2.7	1.0	0.4	0.4	1.0
19	Di–n–butyl phthalate	3.8	ug/L	9.3	N/A	1.6	1.4	N/A	0.2	1.4	N/A	1.0
19	N–Nitrosodi–n–propylamine	3.1	ug/L	117.6	N/A	0.5	1.4	N/A	0.5	5.1	73.9	0.5
19	Naphthalene	1.6	ug/L	0.9	N/A	0.2	1.2	N/A	0.2	1.3	N/A	0.2
20	2,3,4,5–Tetrachlorophenol	0.4	ug/L	0.1	N/A	0.2	0.1	N/A	0.2	0.1	N/A	0.2
20	2,3,4–Trichlorophenol	0.6	ug/L	0.4	N/A	0.2	0.5	N/A	0.2	0.5	N/A	0.2
20	Phenol	2.4	ug/L	0.6	N/A	0.2	0.7	N/A	0.2	0.6	N/A	0.2
23	1,2,4,5–Tetrachlorobenzene	10.0	ng/L	1.5	N/A	1.0	2.0	N/A	1.0	123.9	1041.9	1.0
23	1,2,4–Trichlorobenzene	10.0	ng/L	1.5	N/A	1.0	2.0	20615.9	1.0	25.3	N/A	1.0
23	2,4,5–Trichlorotoluene	10.0	ng/L	1.7	N/A	2.0	1966.3	N/A	2.0	9.0	N/A	2.0
23	Hexachlorobenzene	10.0	ng/L	1.7	1625.1	1.0	856.6	2591.9	170.0	5.3	25.0	1.0
23	Hexachlorobutadiene	10.0	ng/L	165.0	N/A	17.0	723.3	N/A	245.0	3.6	N/A	1.0
23	Hexachlorocyclopentadiene	10.0	ng/L	1.3	N/A	17.0	82.9	N/A	40.0	3.0	N/A	1.0
23	Hexachloroethane	10.0	ng/L	165.9	25883.6	1.0	1.7	1177.6	1.0	3.1	N/A	1.0
23	Octachlorostyrene	10.0	ng/L	4588.2	N/A	3800.0	155.0	N/A	90.0	3.0	N/A	1.0
25	Oil and grease	1.0	mg/L	1.3	9.0	1.0	1.7	5.5	1.0	3.0	23.2	1.0

EXPLANATORY NOTES:
(i) MOE data refers to Ministry Inspection Data.
(ii) Parameters for which either plant or MOE data were not available, are not listed.
(iii) LTA results are Twelve–Month Average Concentration Results.
(iv) "N/A" – no 99th percentile value calculated
(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.

Sampling Points

CO 0200 – 42 inch Outfall to River
CO 0500 – 54 inch Outfall to River
CO 0600 – 2nd Street Outfall to River
CO 0700 – 3rd Street Outfall to River
CO 0900 – 4th Street Outfall to River
PR 1200 – Throx Stripper Effluent flows into CO 0500
PR 1600 – Tank Car Wash (Building 88) flows into CO 0900
PR 1700 – Block 90 Feed (Buildings 35 & 39) flows into CO 0900
PR 1900 – Blox Plant Effluent flows into CO 0900
PR 2000 – Boiler Feedwater Effluent flows into CO 0900
PR 2100 – Scott Road Treated Runoff to River

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – DOW CHEMICAL CANADA INC. – SARNIA

				CONTROL POINT 2000			CONTROL POINT 2100		
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE	LTA	99th Per	MOE
1	COD	10.0	mg/L	63.3	235.2	50.0	101.0	1647.8	126.0
2	Cyanide Total	0.005	mg/L	0.005	N/A	0.001	0.008	0.017	0.004
3	Hydrogen ion (pH)			7.9	9.4	7.9	7.6	9.2	8.0
4	Ammonia plus Ammonium	0.25	mg/L	0.08	0.19	0.05	3.67	12.24	0.95
4	Nitrate+Nitrite	0.25	mg/L	1.56	7.24	1.40	0.03	0.03	0.05
4	Total Kjeldahl nitrogen	0.5	mg/L	1.1	2.4	0.4	3.0	18.1	2.0
5	DOC	1.0	mg/L	3.9	8.8	0.5	22.4	181.3	15.3
5	TOC	5.0	mg/L	3.9	8.4	2.0	24.1	196.0	17.0
6	Total phosphorus	0.10	mg/L	0.06	0.88	0.06	0.27	1.77	0.12
7	Specific conductance	500.0	uS/cm	4047.1	25586.9	5720.0	5444.5	15580.5	3080.0
8	Total suspended solids	5.0	mg/L	11.2	53.3	9.6	4.8	15.2	5.0
8	Volatile suspended solids	10.0	mg/L	3.5	4.0	3.5	3.8	4.0	3.2
9	Aluminum	30.0	ug/L	68.3	268.4	160.0	66.2	158.7	92.0
9	Boron	50.0	ug/L	27.7	103.5	2.0	3408.8	10028.1	10390.0
9	Chromium	20.0	ug/L	4.9	15.5	6.0	11.4	171.0	2.0
9	Copper	10.0	ug/L	5.9	17.7	6.8	5.4	48.0	0.7
9	Lead	30.0	ug/L	157.9	N/A	38.0	24.0	N/A	26.0
9	Molybdenum	20.0	ug/L	18.1	42.6	10.0	25.3	50.9	24.0
9	Nickel	20.0	ug/L	7.7	20.9	24.0	8.1	19.0	17.0
9	Vanadium	30.0	ug/L	39.0	130.1	10.0	42.3	84.8	7.1
9	Zinc	10.0	ug/L	6.7	31.5	6.9	5.4	28.8	2.0
12	Mercury	0.10	ug/L	0.09	N/A	0.02	0.13	0.26	0.20
14	Phenolics (4AAP)	2.0	ug/L	20.6	54.0	1.0	9.7	54.3	4.4
15	Sulphide	20.0	ug/L	42.5	50.0	2.0	62.5	332.2	16.0
16	1,1,2,2–Tetrachloroethane	4.3	ug/L	0.8	N/A	1.0	0.7	N/A	15.0
16	1,1,2–Trichloroethane	0.6	ug/L	0.3	N/A	0.7	15.6	999.8	60.0
16	1,1–Dichloroethane	0.8	ug/L	0.3	N/A	0.5	38.7	2398.8	175.0
16	1,1–Dichloroethylene	2.8	ug/L	0.4	N/A	1.0	0.4	N/A	0.5
16	1,2–Dichloroethane	0.8	ug/L	0.6	N/A	0.5	0.6	N/A	4.0
16	1,2–Dichloropropane	0.9	ug/L	0.2	N/A	1.0	5.2	N/A	40.0
16	Bromodichloromethane	0.8	ug/L	0.3	N/A	1.0	0.3	N/A	4.0
16	Bromoform	3.7	ug/L	0.5	N/A	1.0	0.5	N/A	1.0
16	Carbon tetrachloride	1.3	ug/L	0.8	N/A	0.5	0.8	N/A	0.5
16	Chloroform	0.7	ug/L	0.4	N/A	2.0	2.3	N/A	10.0
16	Chloromethane	3.7	ug/L	2.2	N/A	1.0	1.1	N/A	1.0
16	Cis–1,3–Dichloropropylene	1.4	ug/L	0.4	N/A	1.0	0.7	N/A	1.0
16	Dibromochloromethane	1.1	ug/L	0.4	N/A	0.5	6.6	N/A	0.5
16	Methylene chloride	1.3	ug/L	0.4	N/A	1.0	0.3	N/A	0.5
16	Tetrachloroethylene	1.1	ug/L	1.1	N/A	0.5	0.9	N/A	0.5
16	Trichloroethylene	1.9	ug/L	0.4	N/A	1.0	0.4	N/A	1.0
16	Vinyl chloride	4.0	ug/L	1.2	N/A	1.0	0.7	N/A	1.0

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – DOW CHEMICAL CANADA INC. – SARNIA

				CONTROL POINT 2000			CONTROL POINT 2100		
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE	LTA	99th Per	MOE
17	Benzene	0.5	ug/L	0.2	N/A	0.5	0.2	N/A	0.2
17	Ethylbenzene	0.6	ug/L	0.5	N/A	0.4	0.3	N/A	0.2
17	Styrene	0.5	ug/L	0.5	N/A	0.5	0.3	N/A	0.2
17	m–Xylene and p–Xylene	1.1	ug/L	1.0	N/A	0.9	0.6	N/A	0.5
17	o–Xylene	0.5	ug/L	0.5	N/A	0.4	0.3	N/A	0.2
19	2,6–Dinitrotoluene	0.7	ug/L	0.9	N/A	0.5	0.8	N/A	0.5
19	2–Chloronaphthalene	1.8	ug/L	1.5	N/A	0.2	1.5	N/A	0.2
19	Benzylbutylphthalate	0.6	ug/L	0.1	N/A	0.5	0.1	N/A	0.5
19	Biphenyl	0.6	ug/L	1.0	N/A	0.2	1.0	N/A	0.2
19	Bis(2–chloroethyl)ether	4.4	ug/L	1.4	N/A	0.5	1.4	N/A	0.5
19	Bis(2–chloroisopropyl)ether	2.2	ug/L	1.2	N/A	0.2	2.1	N/A	0.2
19	Bis(2–ethylhexyl) phthalate	2.2	ug/L	1.4	N/A	1.0	0.9	7.4	1.0
19	Di–n–butyl phthalate	3.8	ug/L	1.5	N/A	0.6	1.5	N/A	1.4
19	N–Nitrosodi–n–propylamine	3.1	ug/L	1.3	N/A	0.5	0.9	N/A	0.5
19	Naphthalene	1.6	ug/L	1.2	N/A	0.2	1.4	N/A	2.0
20	2,3,4,5–Tetrachlorophenol	0.4	ug/L	0.1	N/A	0.2	0.1	N/A	0.2
20	2,3,4–Trichlorophenol	0.6	ug/L	0.5	N/A	0.2	0.4	N/A	0.2
20	Phenol	2.4	ug/L	0.6	N/A	0.2	0.6	N/A	0.2
23	1,2,4,5–Tetrachlorobenzene	10.0	ng/L	7.0	N/A	1.0	3.2	N/A	1.0
23	1,2,4–Trichlorobenzene	10.0	ng/L	7.0	N/A	1.0	3.2	86873.5	1.0
23	2,4,5–Trichlorotoluene	10.0	ng/L	9.0	N/A	2.0	1667.6	N/A	2.0
23	Hexachlorobenzene	10.0	ng/L	9.0	19.6	1.0	397.7	1537.1	1.0
23	Hexachlorobutadiene	10.0	ng/L	7.0	N/A	6.0	42.8	N/A	1.0
23	Hexachlorocyclopentadiene	10.0	ng/L	6.8	N/A	3.0	416.6	N/A	1.0
23	Hexachloroethane	10.0	ng/L	5.0	11.2	1.0	2.5	1450.8	1.0
23	Octachlorostyrene	10.0	ng/L	6.3	N/A	2.0	394.4	4040.0	1.0
25	Oil and grease	1.0	mg/L	5.3	5.1	1.0	2.5	1965.8	1.0

EXPLANATORY NOTES:
(i) MOE data refers to Ministry Inspection Data.
(ii) Parameters for which either plant or MOE data were not available, are not listed.
(iii) LTA results are Twelve–Month Average Concentration Results.
(iv) 'N/A' – no 99th percentile value calculated
(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.

Sampling Points

CO 0200 – 42 inch Outfall to River
CO 0500 – 54 inch Outfall to River
CO 0600 – 2nd Street Outfall to River
CO 0700 – 3rd Street Outfall to River
CO 0900 – 4th Street Outfall to River
PR 1200 – Throx Stripper Effluent flows into CO 0500
PR 1600 – Tank Car Wash (Building 88) flows into CO 0900
PR 1700 – Block 90 Feed (Buildings 35 & 39) flows into CO 0900
PR 1900 – Blox Plant Effluent flows into CO 0900
PR 2000 – Boiler Feedwater Effluent flows into CO 0900
PR 2100 – Scott Road Treated Runoff to River

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – DUPONT CANADA INC. – CORUNNA

				CONTROL POINT 0200				CONTROL POINT 0400			
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE 1	MOE 2	LTA	99th Per	MOE 1	MOE 2
1	COD	10.0	mg/L	23.0	N/A	5.0	6.0	48.0	N/A	4.6	6.0
2	Cyanide Total	0.005	mg/L	0.001	N/A	0.001	0.001	0.001	N/A	0.001	0.001
3	Hydrogen ion (pH)			7.9	8.3	8.0	8.2	8.0	8.3	8.1	8.2
4	Ammonia plus Ammonium	0.25	mg/L	0.08	0.47	0.05	0.05	0.03	N/A	0.05	0.05
4	Nitrate+Nitrite	0.25	mg/L	0.36	N/A	0.30	0.20	0.39	N/A	0.35	0.25
4	Total Kjeldahl nitrogen	0.5	mg/L	0.5	1.8	0.1	0.3	0.4	N/A	0.1	0.2
5	DOC	1.0	mg/L	3.0	10.2	1.4	1.9	2.8	9.4	1.3	1.7
5	TOC	5.0	mg/L	4.9	14.9	5.0	2.0	4.0	7.8	4.0	2.0
6	Total phosphorus	0.10	mg/L	0.08	0.32	0.02	0.02	0.10	0.50	0.02	0.02
7	Specific conductance	500.0	uS/cm	282.4	343.5	305.0	237.0	309.0	412.7	378.0	249.0
8	Total suspended solids	5.0	mg/L	6.7	23.1	7.2	5.2	12.0	53.0	4.9	3.8
8	Volatile suspended solids	10.0	mg/L	7.0	N/A	2.4	2.3	10.0	N/A	2.0	1.8
9	Aluminum	30.0	ug/L	220.8	749.9	70.0	160.0	223.2	751.6	52.0	140.0
9	Copper	10.0	ug/L	23.2	141.2	2.9	13.0	25.7	97.6	11.0	31.0
9	Zinc	10.0	ug/L	11.4	45.9	2.0	11.0	19.2	89.0	11.0	24.0
14	Phenolics (4AAP)	2.0	ug/L	2.7	10.0	0.6	1.8	2.8	12.5	0.2	2.2
15	Sulphide	20.0	ug/L	25.0	N/A	2.0	2.0	40.0	N/A	2.0	2.0
16	1,1–Dichloroethane	0.8	ug/L	0.5	N/A	0.5	0.5	0.5	N/A	0.5	0.5
16	1,2–Dichloroethane	0.8	ug/L	0.4	N/A	0.5	0.5	0.4	N/A	0.5	0.5
16	Chloroform	0.7	ug/L	0.6	N/A	1.0	1.0	1.4	N/A	1.0	1.4
16	Chloromethane	3.7	ug/L	2.3	N/A	1.0	1.0	2.3	N/A	1.0	1.0
16	Methylene chloride	1.3	ug/L	2.3	N/A	1.0	0.5	4.3	N/A	2.0	0.5
17	Toluene	0.5	ug/L	3.1	21.8	1.0	0.2	5.2	60.5	1.0	0.2
23	Hexachlorobenzene	10.0	ng/L	6.5	N/A	1.0	1.0	7.5	N/A	1.0	1.0
23	Hexachloroethane	10.0	ng/L	1.7	N/A	1.0	1.0	11.9	N/A	1.0	1.0
23	Pentachlorobenzene	10.0	ng/L	5.1	N/A	1.0	1.0	10.1	N/A	1.0	1.0
25	Oil and grease	1.0	mg/L	1.3	10.0	no data	no data	1.5	21.0	5.0	1.0

EXPLANATORY NOTES:
(i) MOE data refers to Ministry Inspection Data.
(ii) Parameters for which either plant or MOE data were not available, are not listed.
(iii) LTA results are Twelve–Month Average Concentration Results.
(iv) "N/A" – no 99th percentile value calculated
(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.

Sampling Points
CO 0200 – Final Effluent to River
CO 0400 – Pellet Pond Effluent flows into CO 0200

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – DU PONT CANADA INC. – KINGSTON

				CONTROL POINT 0600			CONTROL POINT 0700			CONTROL POINT 1000			CONTROL POINT 1100		
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE	LTA	99th Per	MOE	LTA	99th Per	MOE	LTA	99th Per	MOE
1	COD	10.0	mg/L	16.8	19.0	72.0	25.8	47.9	12.0	1180.0	2611.4	690.0	31.0	114.8	74.0
2	Cyanide Total	0.005	mg/L	0.005	8.371	0.001	0.005	9.070	0.003	0.005	8.062	0.006	0.005	8.710	0.009
3	Hydrogen ion (pH)			8.2	8.4	8.1	8.2	9.1	8.1	7.8	8.1	7.4	8.2	8.7	8.7
4	Ammonia plus Ammonium	0.25	mg/L	0.21	N/A	0.05	0.15	0.38	0.10	0.36	0.87	0.05	0.77	15.29	0.30
4	Nitrate+Nitrite	0.25	mg/L	0.25	0.44	0.35	0.26	0.44	0.30	0.09	0.30	0.05	0.29	0.42	0.40
4	Total Kjeldahl nitrogen	0.5	mg/L	1.1	11.2	1.7	1.5	3.4	1.0	5.5	20.9	4.9	1.1	2.6	5.0
5	DOC	1.0	mg/L	5.0	25.3	7.1	4.2	10.4	4.5	159.3	749.7	96.0	6.7	22.0	24.2
5	TOC	5.0	mg/L	6.7	19.5	24.0	5.7	16.6	8.0	204.4	812.2	172.0	4.0	10.1	26.0
6	Total phosphorus	0.10	mg/L	0.22	3.43	0.02	0.12	0.52	0.02	2.90	19.78	1.50	0.27	7.40	0.04
0	Specific conductance	500.0	uS/cm	320.8	352.4	319.0	327.8	379.3	324.0	328.8	369.0	324.0	353.4	437.4	401.0
8	Total suspended solids	5.0	mg/L	10.6	94.6	10.8	5.4	15.1	1.9	67.9	266.1	178.0	8.0	20.3	7.9
8	Volatile suspended solids	10.0	mg/L	5.0	N/A	9.9	5.0	N/A	1.1	120.3	N/A	172.0	4.2	178.7	4.6
9	Aluminum	30.0	ug/L	44.8	159.3	47.0	39.0	350.8	20.0	39.4	109.6	24.0	42.8	137.9	33.0
9	Boron	50.0	ug/L	53.3	N/A	2.0	56.7	N/A	2.0	93.3	297.0	2.0	63.3	N/A	2.0
9	Copper	10.0	ug/L	22.5	66.0	13.0	10.8	20.0	0.2	19.2	40.0	2.3	16.7	47.7	2.3
9	Zinc	10.0	ug/L	12.5	43.5	31.0	10.0	N/A	17.0	35.2	307.3	32.0	27.5	568.0	4.0
12	Mercury	0.10	ug/L	0.17	0.36	0.09	0.10	N/A	0.02	0.11	0.15	0.02	0.10	N/A	0.02
14	Phenolics (4AAP)	2.0	ug/L	1.1	5.1	2.0	1.3	9.2	1.6	233.9	2454.7	36.0	1.7	9.9	2.2
15	Sulphide	20.0	ug/L	10.0	N/A	2.0	10.0	N/A	2.0	57.3	383.1	24.0	10.0	N/A	2.0
16	1,1,2,2-Tetrachloroethane	4.3	ug/L	1.0	N/A	1.0	1.0	N/A	1.0	6.1	N/A	1.0	1.0	N/A	1.0
16	1,1,2-Trichloroethane	0.6	ug/L	0.2	N/A	0.2	0.2	N/A	0.2	1.7	N/A	0.2	0.2	N/A	0.2
16	1,1-Dichloroethane	0.8	ug/L	0.2	N/A	0.5	0.2	N/A	0.5	1.2	N/A	0.5	0.2	N/A	0.5
16	1,2-Dichloroethane	0.8	ug/L	0.2	N/A	0.5	0.2	N/A	0.5	1.2	N/A	0.5	0.2	N/A	0.5
16	1,2-Dichloropropane	0.9	ug/L	0.2	N/A	1.0	0.2	N/A	1.0	1.2	N/A	1.0	0.2	N/A	1.0
16	Bromodichloromethane	0.8	ug/L	2.1	4.6	0.5	2.5	4.0	3.0	1.8	3.4	0.5	2.8	6.0	0.5
16	Bromoform	3.7	ug/L	2.0	N/A	1.0	2.0	N/A	1.0	12.2	N/A	1.0	2.0	N/A	1.0
16	Chlorobenzene	0.7	ug/L	0.2	N/A	0.2	0.2	N/A	0.2	1.2	N/A	0.2	0.2	N/A	0.2
16	Chloroform	0.7	ug/L	4.0	8.6	5.0	4.7	9.5	7.0	4.3	10.3	5.0	5.2	12.4	8.0
16	Chloromethane	3.7	ug/L	2.0	N/A	1.0	2.0	N/A	1.0	12.2	N/A	1.0	2.0	N/A	1.0
16	Cis-1,3-Dichloropropylene	1.4	ug/L	0.5	N/A	1.0	0.5	N/A	1.0	3.0	N/A	1.0	0.5	N/A	1.0
16	Dibromochloromethane	1.1	ug/L	1.1	1.9	0.5	1.3	2.8	0.5	6.2	N/A	0.5	1.4	3.2	0.5

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT

PLANT – MINISTRY MONITORING COMPARISON

PLANT SITE – DU PONT CANADA INC. – KINGSTON

				CONTROL POINT 0600			CONTROL POINT 0700			CONTROL POINT 1000			CONTROL POINT 1100		
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE	LTA	99th Per	MOE	LTA	99th Per	MOE	LTA	99th Per	MOE
16	Ethylene dibromide	1.0	ug/L	1.0	N/A	0.5	1.0	N/A	0.5	6.1	N/A	0.5	1.0	N/A	0.5
16	Methylene chloride	1.3	ug/L	0.5	N/A	1.0	0.8	N/A	2.0	4.1	N/A	0.5	0.7	N/A	0.5
16	Tetrachloroethylene	1.1	ug/L	0.5	N/A	0.5	0.5	N/A	0.5	3.0	N/A	0.5	0.5	N/A	0.8
16	Trans–1,3–Dichloropropylene	1.4	ug/L	0.5	N/A	1.0	0.5	N/A	1.0	3.0	N/A	1.0	0.5	N/A	1.0
16	Trichlorofluoromethane	1.0	ug/L	1.0	N/A	1.0	1.5	N/A	1.0	6.1	N/A	1.0	1.1	N/A	1.0
16	Vinyl chloride	4.0	ug/L	2.0	N/A	1.0	2.0	N/A	1.0	122	N/A	1.0	2.0	N/A	1.0
17	Benzene	0.5	ug/L	0.3	3.8	0.2	0.4	10.6	0.6	2.2	31.1	10.0	0.7	7.7	0.6
17	Ethylbenzene	0.6	ug/L	0.2	N/A	0.2	0.2	N/A	0.2	1.2	N/A	0.2	0.2	N/A	0.2
17	Styrene	0.5	ug/L	0.2	N/A	0.2	0.3	N/A	0.4	1.2	N/A	0.2	0.5	N/A	0.2
17	Toluene	0.5	ug/L	0.2	N/A	0.2	0.2	N/A	3.0	1.3	N/A	0.2	0.3	N/A	0.2
17	o–Xylene	0.5	ug/L	0.2	N/A	0.2	0.2	N/A	0.2	1.2	N/A	0.2	0.2	N/A	0.2
18	Acrolein	4.0	ug/L	4.0	N/A	1.0	4.0	N/A	1.0	24.3	N/A	1.0	4.0	N/A	1.0
18	Acrylonitrile	4.2	ug/L	2.0	N/A	1.0	2.0	N/A	6.0	12.2	N/A	1.0	2.0	N/A	8.0
19	Biphenyl	0.6	ug/L	4.6	11.7	10.0	2.6	78.8	2.0	2.3	N/A	0.2	2.2	43.9	2.8
19	Bis(2–ethylhexyl) phthalate	2.2	ug/L	2.0	N/A	1.0	2.0	N/A	1.0	13.7	N/A	4.0	2.4	N/A	1.0
19	Diphenyl ether	0.4	ug/L	14.6	60.2	25.2	7.2	47.7	5.2	4.3	14.4	5.2	7.2	45.0	7.8
25	Oil and grease	1.0	mg/L	1.4	5.4	3.0	1.7	9.2	3.0	250.3	1627.7	41.0	1.7	5.1	3.0

EXPLANATORY NOTES:

(i) MOE data refers to Ministry Inspection Data.

(ii) Parameters for which either plant or MOE data were not available, are not listed.

(iii) Plant LTA results are Twelve–Month Average Concentration Results.

(iv) "N/A" – no 99th percentile value calculated

(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.

Sampling Points

PR 0600 – Flake Effluent flows into CO 1100

CO 0700 – Service Sewer to Lake

PR 1000 – Staple Sewer flows into CO 1100

CO 1100 – Catch Basin Effluent to Lake

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – DU PONT CANADA INC. – MAITLAND

				CONTROL POINT 0300				CONTROL POINT 0400				CONTROL POINT 0500			
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE 1	MOE 2	LTA	99th Per	MOE 1	MOE 2	LTA	99th Per	MOE 1	MOE 2
1	COD	10.0	mg/L	203.8	1213.5	277.0	402.0	10.8	18.1	10.0	4.0	15.0	22.5	11.0	12.0
2	Cyanide Total	0.005	mg/L	0.207	0.630	0.071	0.079	0.005	N/A	0.001	0.001	0.018	0.096	0.001	0.001
3	Hydrogen ion (pH)			8.2	8.8	8.0	8.4	8.6	13.3	8.1	7.6	7.5	8.4	7.2	8.0
4	Ammonia plus Ammonium	0.25	mg/L	23.79	1360.11	32.40	0.20	0.14	N/A	0.05	0.05	0.19	0.64	0.10	0.05
4	Nitrate+ Nitrite	0.25	mg/L	14.40	342.33	14.60	24.50	0.35	1.80	0.25	0.15	4.28	14.24	0.50	0.35
4	Total Kjeldahl nitrogen	0.5	mg/L	48.3	326.8	44.3	13.2	0.3	0.8	0.3	0.3	1.0	3.5	0.4	0.6
5	DOC	1.0	mg/L	50.7	217.3	22.8	25.5	2.6	9.5	2.3	2.1	4.6	12.7	2.8	2.2
5	TOC	5.0	mg/L	66.0	272.3	37.0	82.0	3.5	12.7	2.0	2.0	3.9	5.3	4.0	3.0
6	Total phosphorus	0.10	mg/L	4.23	24.33	1.12	7.86	0.10	N/A	0.02	0.16	0.10	N/A	0.02	0.02
7	Specific conductance	500.0	uS/cm	1776.4	3436.8	1213.0	1800.0	1035.1	4018.6	381.0	340.0	486.3	748.2	473.0	386.0
8	Total suspended solids	5.0	mg/L	293.2	1061.2	454.0	53.2	14.3	144.1	2.7	3.9	6.2	35.3	12.1	3.1
8	Volatile suspended solids	10.0	mg/L	299.7	1165.4	428.3	40.1	4.5	N/A	1.1	2.2	5.0	N/A	6.3	2.2
9	Aluminum	30.0	ug/L	193.3	1340.0	59.0	220.0	100.0	369.8	89.0	130.0	55.0	460.1	72.0	80.0
9	Boron	50.0	ug/L	59.2	150.0	160.0	no data	100.0	600.0	220.0	no data	57.5	N/A	130.0	no data
9	Chromium	20.0	ug/L	41.7	260.0	6.0	31.0	20.0	N/A	3.0	1.0	20.8	N/A	1.0	1.0
9	Cobalt	20.0	ug/L	184.7	989.9	91.0	150.0	20.0	N/A	0.5	4.1	20.0	N/A	1.2	2.8
9	Copper	10.0	ug/L	163.4	491.6	110.0	250.0	10.0	N/A	6.4	5.1	20.8	94.9	7.1	11.0
9	Nickel	20.0	ug/L	18.3	80.7	7.0	18.0	12.5	N/A	1.0	2.0	10.0	N/A	1.0	2.0
9	Vanadium	30.0	ug/L	104.5	349.0	140.0	210.0	20.0	N/A	1.5	3.1	20.0	N/A	2.5	1.7
9	Zinc	10.0	ug/L	61.7	400.3	15.0	41.0	10.0	N/A	2.0	5.6	10.0	N/A	6.9	6.5
10	Antimony	5.0	ug/L	2.1	N/A	1.0	2.0	132.8	2130.0	21.0	4.0	2.0	N/A	1.0	1.0
10	Arsenic	5.0	ug/L	2.0	3.9	1.0	1.0	18.9	119.2	3.0	1.0	2.0	N/A	1.0	1.0
14	Phenolics (4AAP)	2.0	ug/L	18.7	176.5	14.8	2.0	4.6	11.1	1.2	0.8	3.1	N/A	8.6	1.4
15	Sulphide	20.0	ug/L	20.8	N/A	15.0	30.0	16.5	N/A	2.0	2.0	10.0	N/A	2.0	2.0
16	1,1,2,2-Tetrachloroethane	4.3	ug/L	12.3	N/A	1.0	1.0	174.5	N/A	1.0	1.0	26.8	N/A	1.0	1.0
16	1,1,2-Trichloroethane	0.6	ug/L	2.5	N/A	0.2	0.8	27.8	N/A	0.2	2.0	5.4	N/A	0.2	0.6
16	1,1-Dichloroethane	0.8	ug/L	2.5	N/A	0.5	0.5	22.3	N/A	0.5	0.5	5.4	N/A	0.5	0.5
16	1,1-Dichloroethylene	2.8	ug/L	6.1	N/A	0.5	0.5	55.8	N/A	0.5	0.5	13.4	N/A	0.5	0.5
16	1,2-Dichlorobenzene	1.4	ug/L	2.5	N/A	0.5	0.5	22.3	N/A	0.5	0.5	5.4	N/A	0.5	0.5
16	1,2-Dichloroethane	0.8	ug/L	2.5	N/A	0.5	0.5	22.3	N/A	0.5	0.5	5.4	N/A	0.5	0.5
16	1,2-Dichloropropane	0.9	ug/L	2.5	N/A	1.0	1.0	22.3	N/A	1.0	1.0	5.4	N/A	1.0	1.0
16	1,3-Dichlorobenzene	1.1	ug/L	2.5	N/A	0.5	0.5	22.3	N/A	0.5	0.5	5.4	N/A	0.5	0.5
16	1,4-Dichlorobenzene	1.7	ug/L	2.5	N/A	1.0	1.0	22.3	N/A	1.0	1.0	5.4	N/A	1.0	1.0
16	Bromodichloromethane	0.8	ug/L	2.5	96.5	0.5	0.5	30.5	87.1	0.5	0.5	6.0	20.0	4.0	0.5
16	Bromoform	3.7	ug/L	24.5	N/A	1.0	1.0	223.3	N/A	1.0	1.0	53.5	N/A	1.0	1.0

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – DU PONT CANADA INC. – MAITLAND

				CONTROL POINT 0300				CONTROL POINT 0400				CONTROL POINT 0500			
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE 1	MOE 2	LTA	99th Per	MOE 1	MOE 2	LTA	99th Per	MOE 1	MOE 2
16	Carbon tetrachloride	1.3	ug/L	2.5	N/A	0.5	0.5	143.7	553.8	0.5	15.0	6.1	N/A	0.5	0.5
16	Chlorobenzene	0.7	ug/L	2.5	N/A	0.2	0.2	22.3	N/A	0.2	0.2	5.4	N/A	0.2	0.2
16	Chloroform	0.7	ug/L	1.8	8.5	1.0	3.0	71.3	463.8	0.2	6.0	7.5	20.0	5.0	3.0
16	Chloromethane	3.7	ug/L	24.5	N/A	1.0	1.0	223.3	N/A	1.0	1.0	53.5	N/A	1.0	1.0
16	Cis-1,3-Dichloropropylene	1.4	ug/L	6.1	N/A	1.0	1.0	55.8	N/A	1.0	1.0	13.4	N/A	1.0	1.0
16	Dibromochloromethane	1.1	ug/L	12.3	N/A	0.5	0.5	174.5	184.2	0.5	0.5	26.8	N/A	0.5	0.5
16	Ethylene dibromide	1.0	ug/L	12.3	N/A	0.5	0.5	111.7	N/A	0.5	0.5	26.8	N/A	0.5	0.5
16	Methylene chloride	1.3	ug/L	2.2	N/A	0.5	0.5	70.0	N/A	0.5	2.0	1.2	N/A	0.5	0.5
16	Tetrachloroethylene	1.1	ug/L	6.1	N/A	0.5	0.5	2907.9	62446.2	0.5	15.0	15.0	N/A	0.5	0.5
16	Trans-1,2-Dichloroethylene	1.4	ug/L	2.5	N/A	0.5	0.5	22.3	N/A	0.5	0.5	5.4	N/A	0.5	0.5
16	Trans-1,3-Dichloropropylene	1.4	ug/L	6.1	N/A	1.0	1.0	55.8	N/A	1.0	1.0	13.4	N/A	1.0	1.0
16	Trichloroethylene	1.9	ug/L	2.5	N/A	1.0	1.0	22.3	N/A	1.0	1.0	5.4	N/A	1.0	1.0
16	Trichlorofluoromethane	1.0	ug/L	12.3	N/A	1.0	1.0	2870.1	15548.2	55.0	120.0	33.2	N/A	1.0	1.0
16	Vinyl chloride	4.0	ug/L	24.5	N/A	1.0	1.0	223.3	N/A	1.0	1.0	53.5	N/A	1.0	1.0
17	Benzene	0.5	ug/L	1.5	17.3	0.5	0.2	9.0	N/A	0.2	0.2	3.6	N/A	0.5	0.2
17	Ethylbenzene	0.6	ug/L	2.5	N/A	0.2	0.2	16.0	N/A	0.2	0.2	5.4	N/A	0.2	0.2
17	Styrene	0.5	ug/L	2.5	N/A	0.2	0.2	16.0	N/A	0.2	0.2	5.4	N/A	0.2	0.2
17	Toluene	0.5	ug/L	2.5	N/A	0.2	0.2	16.0	N/A	0.4	0.2	5.4	N/A	0.2	0.2
17	m-Xylene and p-Xylene	1.1	ug/L	3.0	70.1	0.5	0.5	16.0	N/A	0.5	0.5	5.4	N/A	0.5	0.5
17	o-Xylene	0.5	ug/L	2.5	N/A	0.2	0.2	16.0	N/A	0.2	0.2	5.4	N/A	0.2	0.2
18	Acrolein	4.0	ug/L	111.0	N/A	1.0	1.0	320.0	N/A	1.0	1.0	107.0	N/A	1.0	1.0
18	Acrylonitrile	4.2	ug/L	55.5	N/A	1.0	1.0	160.0	N/A	1.0	1.0	53.5	N/A	1.0	1.0
19	Diphenyl ether	0.4	ug/L	89.8	N/A	2.0	0.2	0.4	N/A	2.0	0.2	2.1	N/A	2.0	0.2
23	1,2,4-Trichlorobenzene	10.0	ng/L	6.8	N/A	20.0	2.0	46.8	N/A	2.0	2.0	5.3	N/A	2.0	2.0
23	Hexachlorobenzene	10.0	ng/L	6.7	N/A	10.0	1.0	194.8	867.4	35.0	4.0	5.0	N/A	1.0	1.0
23	Hexachlorobutadiene	10.0	ng/L	6.8	N/A	10.0	1.0	19.5	176.1	9.0	1.0	5.0	N/A	1.0	1.0
23	Hexachloroethane	10.0	ng/L	6.7	N/A	10.0	1.0	98.5	164.0	45.0	15.0	5.0	N/A	1.0	1.0
25	Oil and grease	1.0	mg/L	6.4	24.9	6.0	2.0	1.1	4.8	2.0	1.0	1.3	13.0	3.0	2.0

EXPLANATORY NOTES:

(i) MOE data refers to Ministry Inspection Data.
(ii) Parameters for which either plant or MOE data were not available, are not listed.
(iii) Plant LTA results are Twelve-Month Average Concentration Results.
(iv) "N/A" – no 99th percentile value calculated
(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.

Sampling Points

PR 0300 – WTP Effluent flows into CO 1100
CO 0400 – CFH Effluent flows into CO 0700
CO 0500 – Spandex, Polymers, Powerhouse Effluent flows into CO 1100
CO 0700 – Cribbed Ditch flows into CO 1100
CO 1100 – Site Effluent to River

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
COMPARISON OF MINISTRY AND PLANT DATA
PLANT SITE – DU PONT CANADA INC. – MAITLAND

				CONTROL POINT 0700				CONTROL POINT 1100			
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE 1	MOE 2	LTA	99th Per	MOE 1	MOE 2
1	COD	10.0	mg/L	212.8	5572.4	916.0	30.0	60.5	456.8	76.0	44.0
2	Cyanide Total	0.005	mg/L	0.016	0.104	0.001	0.010	0.040	0.268	0.001	0.001
3	Hydrogen Ion (pH)			7.9	9.6	5.3	7.7	7.7	8.4	7.2	7.6
4	Ammonia plus Ammonium	0.25	mg/L	0.19	0.79	0.40	0.05	1.01	7.01	0.90	0.65
4	Nitrate+Nitrite	0.25	mg/L	1.06	5.33	2.00	1.75	2.70	11.07	6.50	1.60
4	Total Kjeldahl nitrogen	0.5	mg/L	1.0	3.5	1.0	0.5	6.2	31.1	2.1	3.1
5	DOC	1.0	mg/L	11.3	57.8	234.0	11.2	6.3	20.5	22.6	2.8
5	TOC	5.0	mg/L	4.2	7.6	225.0	12.0	9.3	31.4	26.0	16.0
6	Total phosphorus	0.10	mg/L	0.10	N/A	0.04	0.02	0.62	6.17	0.04	0.58
7	Specific conductance	500.0	uS/cm	463.3	1014.8	396.0	310.0	387.8	502.5	395.0	348.0
8	Total suspended solids	5.0	mg/L	6.6	42.0	1.8	21.6	25.5	168.4	9.9	40.7
8	Volatile suspended solids	10.0	mg/L	5.0	N/A	1.3	20.4	17.0	27.0	8.7	36.1
9	Aluminum	30.0	ug/L	62.5	197.2	88.0	63.0	158.3	1163.7	60.0	220.0
9	Boron	50.0	ug/L	50.0	N/A	290.0	no data	55.8	100.0	120.0	no data
9	Chromium	20.0	ug/L	20.0	N/A	1.0	1.0	21.7	N/A	3.0	2.0
9	Cobalt	20.0	ug/L	20.0	N/A	1.8	4.1	22.9	107.1	5.7	12.0
9	Copper	10.0	ug/L	35.0	N/A	320.0	35.0	93.3	978.7	790.0	66.0
9	Nickel	20.0	ug/L	10.0	N/A	10.0	1.0	10.0	N/A	39.0	1.0
9	Vanadium	30.0	ug/L	22.5	N/A	25.0	3.8	20.0	N/A	17.0	7.7
9	Zinc	10.0	ug/L	10.0	N/A	17.0	16.0	63.3	910.7	410.0	9.6
10	Antimony	5.0	ug/L	3.3	N/A	10.0	1.0	13.5	103.3	120.0	10.0
10	Arsenic	5.0	ug/L	2.0	N/A	2.0	1.0	2.1	3.0	2.0	1.0
14	Phenolics (4AAP)	2.0	ug/L	4.4	53.7	5.1	0.8	6.1	57.3	10.6	2.0
15	Sulphide	20.0	ug/L	10.0	N/A	2.0	2.0	10.0	N/A	2.0	2.0
16	1,1,2,2–Tetrachloroethane	4.3	ug/L	26.8	N/A	1.0	1.0	1.3	N/A	1.0	1.0
16	1,1,2–Trichloroethane	0.6	ug/L	5.4	N/A	0.2	0.2	0.3	N/A	0.2	0.6
16	1,1–Dichloroethane	0.8	ug/L	5.4	N/A	0.5	0.5	0.3	N/A	0.5	0.5
16	1,1–Dichloroethylene	2.8	ug/L	13.4	N/A	0.5	0.5	0.7	N/A	0.5	0.5
16	1,2–Dichlorobenzene	1.4	ug/L	5.4	N/A	0.5	0.5	0.3	N/A	0.5	0.5
16	1,2–Dichloroethane	0.8	ug/L	5.4	N/A	0.5	0.5	0.3	N/A	0.5	0.5
16	1,2–Dichloropropane	0.9	ug/L	5.4	N/A	1.0	1.0	0.3	N/A	1.0	1.0
16	1,3–Dichlorobenzene	1.1	ug/L	5.4	N/A	0.5	0.5	0.3	N/A	0.5	0.5
16	1,4–Dichlorobenzene	1.7	ug/L	5.4	N/A	1.0	1.0	0.3	N/A	1.0	1.0
16	Bromodichloromethane	0.8	ug/L	6.5	N/A	0.5	0.5	0.8	1.3	0.5	0.5
16	Bromoform	3.7	ug/L	53.5	N/A	1.0	1.0	2.7	N/A	1.0	1.0

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
COMPARISON OF MINISTRY AND PLANT DATA
PLANT SITE – DU PONT CANADA INC. – MAITLAND

				CONTROL POINT 0700				CONTROL POINT 1100			
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE 1	MOE 2	LTA	99th Per	MOE 1	MOE 2
16	Carbon tetrachloride	1.3	ug/L	9.6	82.8	9.0	0.5	1.0	4.1	0.5	0.5
16	Chlorobenzene	0.7	ug/L	5.5	N/A	0.4	0.2	0.3	N/A	0.2	0.2
16	Chloroform	0.7	ug/L	9.3	27.8	7.0	3.0	2.1	4.5	2.0	5.0
16	Chloromethane	3.7	ug/L	53.5	N/A	1.0	1.0	2.7	N/A	1.0	1.0
16	Cis–1,3–Dichloropropylene	1.4	ug/L	13.4	N/A	1.0	1.0	0.7	N/A	1.0	1.0
16	Dibromochloromethane	1.1	ug/L	26.9	N/A	0.5	0.5	1.3	N/A	0.5	0.5
16	Ethylene dibromide	1.0	ug/L	26.8	N/A	0.5	0.5	1.3	N/A	0.5	0.5
16	Methylene chloride	1.3	ug/L	1.2	N/A	0.5	0.5	0.8	N/A	0.5	2.0
16	Tetrachloroethylene	1.1	ug/L	128.8	5330.3	0.5	1.0	18.4	151.3	0.5	2.0
16	Trans–1,2–Dichloroethylene	1.4	ug/L	5.4	N/A	0.5	0.5	0.3	N/A	3.0	0.5
16	Trans–1,3–Dichloropropylene	1.4	ug/L	13.4	N/A	1.0	1.0	0.7	N/A	1.0	1.0
16	Trichloroethylene	1.9	ug/L	5.4	N/A	1.0	1.0	2.0	49.8	1.0	1.0
16	Trichlorofluoromethane	1.0	ug/L	70.4	402.0	15.0	7.0	16.3	153.7	1.0	1.0
16	Vinyl chloride	4.0	ug/L	53.5	N/A	1.0	1.0	2.7	N/A	1.0	1.0
17	Benzene	0.5	ug/L	51.2	1974.9	9.0	0.2	0.7	5.7	0.8	0.2
17	Ethylbenzene	0.6	ug/L	5.4	N/A	0.2	0.2	0.3	N/A	0.2	0.2
17	Styrene	0.5	ug/L	5.4	N/A	0.2	0.2	0.3	N/A	0.2	0.2
17	Toluene	0.5	ug/L	5.4	N/A	0.3	0.2	0.5	2.1	0.6	0.2
17	m–Xylene and p–Xylene	1.1	ug/L	5.5	N/A	0.5	0.5	0.4	1.1	0.5	0.5
17	o–Xylene	0.5	ug/L	5.4	N/A	0.2	0.2	0.3	N/A	0.2	0.2
18	Acrolein	4.0	ug/L	107.0	N/A	1.0	1.0	8.0	N/A	1.0	1.0
18	Acrylonitrile	4.2	ug/L	53.5	N/A	1.0	1.0	4.0	N/A	1.0	1.0
19	Diphenyl ether	0.4	ug/L	5.3	N/A	2.0	1.8	0.5	N/A	2.0	0.2
23	1,2,4–Trichlorobenzene	10.0	ng/L	6.3	N/A	20.0	2.0	6.3	N/A	20.0	2.0
23	Hexachlorobenzene	10.0	ng/L	5.8	N/A	10.0	1.0	6.1	N/A	10.0	1.0
23	Hexachlorobutadiene	10.0	ng/L	6.3	N/A	10.0	1.0	5.6	N/A	10.0	1.0
23	Hexachloroethane	10.0	ng/L	10.0	N/A	25.0	2.0	12.6	N/A	34.0	2.0
25	Oil and grease	1.0	mg/L	1.1	3.0	3.0	2.0	2.5	17.2	3.0	2.0

EXPLANATORY NOTES:
(i) MOE data refers to Ministry Inspection Data
(ii) Parameters for which either plant or MOE data were not available, are not listed.
(iii) Plant LTA results are Twelve–Month Average Concentration Results.
(iv) "N/A" – no 99th percentile value calculated
(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.

Sampling Points
PR 0300 – WTP Effluent flows into CO 1100
CO 0400 – CFH Effluent flows into CO 0700
CO 0500 – Spandex, Polymers, Powerhouse Effluent flows into CO 1100
CO 0700 – Cribbed Ditch flows into CO 1100
CO 1100 – Site Effluent to River

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – DUPONT CANADA INC. – WHITBY

				CONTROL POINT 0200				CONTROL POINT 0300		
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE 1	MOE 2	LTA	99th Per	MOE 1
1	COD	10.0	mg/L	13.0	N/A		8.0			
2	Cyanide Total	0.005	mg/L	0.005	N/A		0.001			
3	Hydrogen ion (pH)			7.9	8.3		8.2	7.8	8.4	
4	Ammonia plus Ammonium	0.25	mg/L	0.11	N/A		0.10			
4	Nitrate+Nitrite	0.25	mg/L	0.40	N/A		0.40			
4	Total Kjeldahl nitrogen	0.5	mg/L	0.3	N/A		0.4			
5	DOC	1.0	mg/L	3.5	16.0		2.7	1.7	2.7	
5	TOC	5.0	mg/L	3.8	9.0		3.0	2.0	2.8	
6	Total phosphorus	0.10	mg/L	0.10	0.20		0.06	0.10		
7	Specific conductance	500.0	uS/cm	322.5	386.2		317.0	340.0	635.0	
8	Total suspended solids	5.0	mg/L	3.0	12.7		1.8	2.0	9.4	
8	Volatile suspended solids	10.0	mg/L	3.9	N/A		1.0			
9	Aluminum	30.0	ug/L	100.0	256.6	110.0	78.0	68.3	126.6	200.0
9	Copper	10.0	ug/L	10.0	N/A	10.0	11.0	17.5	49.7	22.0
9	Zinc	10.0	ug/L	10.0	N/A	8.0	8.0	10.8	N/A	29.0
14	Phenolics (4AAP)	2.0	ug/L	4.6	26.3		0.6	1.2		
16	Bromodichloromethane	0.8	ug/L	2.5	N/A		2.5			
16	Chloroform	0.7	ug/L	2.3	N/A		2.0			
16	Dibromochloromethane	1.1	ug/L	1.7	N/A		1.5			
19	Bis(2-ethylhexyl) phthalate	2.2	ug/L	5.5	N/A		1.0			
19	Di-n-octyl phthalate	2.0	ug/L	2.3	N/A		0.2			
19	Diphenyl ether	0.4	ug/L	0.5	N/A		0.2			
19	Fluoranthene	0.4	ug/L	2.2	N/A		0.2			
25	Oil and grease	1.0	mg/L	1.3	6.1		1.0	2.2	32.2	

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – DUPONT CANADA INC. – WHITBY

				CONTROL POINT 0400			CONTROL POINT 0500			CONTROL POINT 0600		
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE 1	LTA	99th Per	MOE 1	LTA	99th Per	MOE 1
1	COD	10.0	mg/L									12.0
2	Cyanide Total	0.005	mg/L									0.001
3	Hydrogen Ion (pH)			7.9	8.5		7.9	8.4		8.0	8.4	8.1
4	Ammonia plus Ammonium	0.25	mg/L									0.15
4	Nitrate+Nitrite	0.25	mg/L									0.40
4	Total Kjeldahl nitrogen	0.5	mg/L									0.4
5	DOC	1.0	mg/L	1.7	2.5		1.7	2.5		2.0	4.1	3.1
5	TOC	5.0	mg/L	2.0	2.9		2.0	2.6		2.0	3.1	4.0
6	Total phosphorus	0.10	mg/L	0.10			0.10			0.10	N/A	0.02
7	Specific conductance	500.0	uS/cm	352.0	794.0		387.0	1181.0		348.4	705.0	357.0
8	Total suspended solids	5.0	mg/L	2.0	9.8		4.0	21.5		8.1	92.3	1.0
8	Volatile suspended solids	10.0	mg/L									1.0
9	Aluminum	30.0	ug/L	83.3	232.6	68.0	85.0	152.5	85.0	131.7	444.6	100.0
9	Copper	10.0	ug/L	10.0	N/A	43.0	10.8	N/A	16.0	11.7	20.0	13.0
9	Zinc	10.0	ug/L	10.0	N/A	26.0	10.0	N/A	6.9	10.0	N/A	9.8
14	Phenolics (4AAP)	2.0	ug/L	1.1			1.1			1.2	N/A	0.8
16	Bromodichloromethane	0.8	ug/L									0.5
16	Chloroform	0.7	ug/L									2.0
16	Dibromochloromethane	1.1	ug/L									0.5
19	Bis(2-ethylhexyl) phthalate	2.2	ug/L									1.0
19	Di-n-octyl phthalate	2.0	ug/L									0.2
19	Diphenyl ether	0.4	ug/L									4.6
19	Fluoranthene	0.4	ug/L									0.2
25	Oil and grease	1.0	mg/L	1.1			1.1			1.1	N/A	1.0

EXPLANATORY NOTES:
(i) MOE data refers to Ministry Inspection Data.
(ii) Parameters for which either plant or MOE data were not available, are not listed.
(iii) Plant LTA results are Twelve-Month Average Concentration Results.
(iv) "N/A" – no 99th percentile value calculated
(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.
(vi) Blank – no MOE data and/or no monitoring data available

Sampling Points
CO 0200 – Nylon Line Combined Effluent to River
OT 0300 – Nylon Line Cooling Water to River
OT 0400 – Polythylene Extrusion Water South to River
OT 0500 – Reclaim Unit #2 to River
OT 0600 – Polythylene Extrusion Water North to River

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – ESSO CHEMICAL CANADA – SARNIA

				CONTROL POINT 0200			CONTROL POINT 0300		
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE	LTA	99th Per	MOE
1	COD	10.0	mg/L	31.0	115.7	14.0	30.3	103.1	38.0
2	Cyanide Total	0.005	mg/L	0.014	N/A	0.001	0.011	0.043	0.002
3	Hydrogen ion (pH)			7.8	8.6	8.0	8.2	9.2	8.3
4	Ammonia plus Ammonium	0.25	mg/L	0.10	N/A	0.05	0.10	N/A	0.05
4	Nitrate+Nitrite	0.25	mg/L	0.35	0.86	0.20	0.22	0.60	0.40
4	Total Kjeldahl nitrogen	0.5	mg/L	0.3	0.5	0.3	0.2	0.4	0.3
5	DOC	1.0	mg/L	4.4	13.9	3.1	6.7	17.0	10.0
5	TOC	5.0	mg/L	4.8	12.9	3.0	7.2	16.7	12.0
6	Total phosphorus	0.10	mg/L	0.03	0.09	0.02	0.03	0.05	0.02
7	Specific conductance	500.0	uS/cm	276.2	489.8	281.0	218.8	319.3	257.0
8	Total suspended solids	5.0	mg/L	5.6	30.2	2.7	6.2	21.1	6.0
8	Volatile suspended solids	10.0	mg/L	3.2	11.6	1.7	6.4	10.3	5.1
9	Aluminum	30.0	ug/L	74.2	253.8	90.0	56.7	168.1	59.0
9	Copper	10.0	ug/L	19.7	52.0	20.0	23.3	73.1	20.0
9	Zinc	10.0	ug/L	19.3	76.5	9.2	23.2	80.7	34.0
14	Phenolics (4AAP)	2.0	ug/L	2.5	10.1	1.2	2.2	6.2	1.2
16	Bromodichloromethane	0.8	ug/L	0.4	1.1	0.7	0.9	1.7	0.5
16	Chloroform	0.7	ug/L	1.2	6.7	4.0	3.0	8.9	4.0
16	Tetrachloroethylene	1.1	ug/L	2.1	14.1	3.0	0.5	N/A	2.0
16	Vinyl chloride	4.0	ug/L	2.6	32.9	1.0	7.7	126.3	30.0
17	Benzene	0.5	ug/L	3.4	22.9	0.2	4.7	14.3	0.6
17	Toluene	0.5	ug/L	5.4	86.2	0.2	4.9	35.6	0.6
17	m–Xylene and p–Xylene	1.1	ug/L	5.0	72.2	0.5	4.5	33.5	0.5
17	o–Xylene	0.5	ug/L	2.6	43.2	0.2	2.3	19.4	0.2
19	Bis(2–ethylhexyl) phthalate	2.2	ug/L	5.9	N/A	1.0	5.2	N/A	1.0
23	Hexachlorobutadiene	10.0	ng/L	217.3	847.5	2380.0	55.3	701.0	160.0
23	Hexachloroethane	10.0	ng/L	72.8	260.2	230.0	16.0	N/A	30.0
25	Oil and grease	1.0	mg/L	1.3	3.5	1.0	1.3	3.8	3.0

EXPLANATORY NOTES:
(i) MOE data refers to Ministry Inspection Data.
(ii) Parameters for which either plant or MOE data were not available, are not listed.
(iii) Plant LTA results are Twelve–Month Average Concentration Results.
(iv) "N/A" – no 99th percentile value calculated
(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.

Sampling Points
PR 0200 – Carbon Contactor Effluent flows into CO 0300
CO 0300 – Effluent to River

OCM SECTOR TWELVE MONTH REPORT
PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – ETHYL CANADA INC. – CORUNNA

				CONTROL POINT 0100			CONTROL POINT 0200			CONTROL POINT 0300		
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE	LTA	99th Per	MOE	LTA	99th Per	MOE
1	COD	10.0	mg/L	21.8	N/A	14.0	314.0	1255.8	71.0	2200.0	4987.3	122.0
2	Cyanide Total	0.005	mg/L	0.001	N/A	0.001	0.010	N/A	0.001	0.001	N/A	0.001
3	Hydrogen Ion (pH)			7.9	9.8	8.0	3.7	12.2	2.1	9.2	11.5	9.5
4	Ammonia plus Ammonium	0.25	mg/L	0.32	N/A	0.05	0.06	0.24	0.05	0.69	2.46	0.40
4	Nitrate+Nitrite	0.25	mg/L	0.49	1.21	0.30	20.09	148.27	0.35	0.29	1.35	0.10
4	Total Kjeldahl nitrogen	0.5	mg/L	1.0	7.2	0.2	0.6	2.7	0.3	1.1	2.8	0.7
5	DOC	1.0	mg/L	2.1	5.5	0.9	6.7	31.8	4.7	20.1	78.4	24.0
5	TOC	5.0	mg/L	2.9	7.3	3.0	13.2	83.3	8.0	22.2	72.3	38.0
6	Total phosphorus	0.10	mg/L	0.20	1.21	0.02	0.09	0.21	0.04	0.18	1.10	0.05
7	Specific conductance	500.0	uS/cm	2299.3	11415.9	2000.0	11590.9	145506.9	6430.0	80306.7	305544.6	78200.0
8	Total suspended solids	5.0	mg/L	12.3	66.2	5.4	24.0	162.9	15.3	50.6	268.5	42.4
8	Volatile suspended solids	10.0	mg/L	8.3	11.5	2.8	16.6	20.0	6.2	7.4	N/A	19.0
9	Aluminum	30.0	ug/L	3041.8	17519.1	196.0	91099.9	4456378.0	737.0	20128.8	65383.0	739.0
9	Boron	50.0	ug/L	72.5	228.4	2.0	27.2	75.9	3104.0	2650.0	6472.5	2.0
9	Chromium	20.0	ug/L	2.7	6.0	1.0	51.5	398.9	3.0	5.7	23.8	1.0
9	Copper	10.0	ug/L	9.3	54.0	4.5	91.4	973.4	28.0	5.3	20.2	4.4
9	Lead	30.0	ug/L	381.3	1713.3	105.0	534.3	5321.8	1385.0	16710.2	85589.7	2725.0
9	Nickel	20.0	ug/L	9.0	N/A	3.0	107.8	413.5	14.0	9.4	N/A	7.0
9	Thallium	30.0	ug/L	10.9	N/A	90.0	36.8	237.9	30.0	18.6	69.4	900.0
9	Zinc	10.0	ug/L	17.5	87.7	8.1	91.7	655.5	43.0	52.8	574.3	12.0
12	Mercury	0.10	ug/L	0.60	5.57	0.05	0.16	0.98	0.03	0.36	2.68	0.03
14	Phenolics (4AAP)	2.0	ug/L	9.1	56.4	3.8	19.6	159.8	1.8	176.6	755.7	77.4
15	Sulphide	20.0	ug/L	32.5	98.6	2.0	84.0	376.4	2.0	137.5	484.9	2.0
16	1,1,2,2–Tetrachloroethane	4.3	ug/L	5.8	N/A	1.0	51.9	N/A	1.0	5.8	N/A	1.0
16	1,1,2–Trichloroethane	0.6	ug/L	10.1	N/A	0.2	92.3	N/A	1.0	10.1	N/A	10.0
16	1,1–Dichloroethane	0.8	ug/L	128.1	3135.8	80.0	7760.9	342694.6	3700.0	9.3	N/A	25.0
16	1,1–Dichloroethylene	2.8	ug/L	12.9	N/A	0.5	118.4	N/A	0.5	12.6	N/A	25.0
16	1,2–Dichlorobenzene	1.4	ug/L	6.9	N/A	0.5	63.0	N/A	0.5	6.9	N/A	0.5
16	1,2–Dichloroethane	0.8	ug/L	131.5	614.8	15.0	218.5	3000.4	15.0	2475.7	6050.0	4920.0
16	1,2–Dichloropropane	0.9	ug/L	9.1	N/A	1.0	84.1	N/A	3.0	9.7	N/A	50.0
16	1,3–Dichlorobenzene	1.1	ug/L	5.4	N/A	0.5	49.5	N/A	0.5	5.4	N/A	0.5
16	1,4–Dichlorobenzene	1.7	ug/L	3.9	N/A	1.0	35.2	N/A	1.0	3.9	N/A	1.0
16	Bromodichloromethane	0.8	ug/L	13.2	N/A	0.5	63.0	N/A	0.5	16.5	N/A	25.0
16	Bromoform	3.7	ug/L	5.5	N/A	1.0	49.6	N/A	1.0	5.5	N/A	50.0

OCM SECTOR TWELVE MONTH REPORT
PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – ETHYL CANADA INC. – CORUNNA

				CONTROL POINT 0100			CONTROL POINT 0200			CONTROL POINT 0300		
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE	LTA	99th Per	MOE	LTA	99th Per	MOE
16	Carbon tetrachloride	1.3	ug/L	5.2	N/A	0.5	47.2	N/A	0.5	5.2	N/A	25.0
16	Chlorobenzene	0.7	ug/L	10.4	N/A	0.2	94.5	N/A	0.2	10.4	N/A	0.2
16	Chloroform	0.7	ug/L	40.3	421.3	6.0	248.2	N/A	0.9	24.9	N/A	25.0
16	Chloromethane	3.7	ug/L	56.4	179.7	7.0	938.9	6825.1	1.0	239.7	1524.0	360.0
16	Cis–1,3–Dichloropropylene	1.4	ug/L	12.1	N/A	1.0	110.2	N/A	1.0	12.1	N/A	1.0
16	Dibromochloromethane	1.1	ug/L	9.0	N/A	0.5	65.3	N/A	0.5	7.2	N/A	25.0
16	Ethylene dibromide	1.0	ug/L	12.7	N/A	0.5	163.8	227.0	0.5	79.9	970.8	0.5
16	Methylene chloride	1.3	ug/L	89.0	390.3	0.5	1344.1	2982.5	3500.0	554.2	10784.9	700.0
16	Tetrachloroethylene	1.1	ug/L	3.7	N/A	0.5	26.9	N/A	0.5	3.6	N/A	25.0
16	Trans–1,2–Dichloroethylene	1.4	ug/L	7.2	N/A	0.5	65.3	N/A	0.5	7.2	N/A	25.0
16	Trans–1,3–Dichloropropylene	1.4	ug/L	19.0	N/A	1.0	173.2	N/A	1.0	19.0	N/A	1.0
16	Trichloroethylene	1.9	ug/L	5.2	N/A	1.0	47.2	N/A	1.0	5.2	N/A	50.0
16	Trichlorofluoromethane	1.0	ug/L	5.2	N/A	1.0	47.2	N/A	1.0	5.2	N/A	1.0
16	Vinyl chloride	4.0	ug/L	53.8	N/A	1.0	521.1	N/A	1.0	84.8	N/A	9.0
17	Benzene	0.5	ug/L	14.1	N/A	0.2	116.0	N/A	0.2	10.0	N/A	10.0
17	Ethylbenzene	0.6	ug/L	6.2	N/A	0.2	58.4	N/A	0.6	6.4	N/A	10.0
17	Styrene	0.5	ug/L	6.2	N/A	0.5	58.4	N/A	0.2	6.4	N/A	0.2
17	Toluene	0.5	ug/L	49.7	326.7	0.4	452.5	N/A	1.0	325.1	650.4	290.0
17	m–Xylene and p–Xylene	1.1	ug/L	8.3	N/A	0.5	88.5	N/A	1.0	8.4	N/A	0.5
17	o–Xylene	0.5	ug/L	7.2	N/A	0.2	65.3	N/A	0.2	7.3	N/A	2.0
19	1–Methylnaphthalene	3.2	ug/L	2.2	N/A	0.5	2.2	N/A	0.5	17.5	78.9	26.0
19	2–Methylnaphthalene	2.2	ug/L	1.5	N/A	0.6	1.5	N/A	0.2	11.4	58.8	35.0
19	Acenaphthene	1.3	ug/L	0.7	N/A	0.2	0.7	N/A	0.2	9.5	22.5	8.4
19	Benzylbutylphthalate	0.6	ug/L	0.6	N/A	0.5	0.6	N/A	0.5	0.6	N/A	0.5
19	Biphenyl	0.6	ug/L	0.4	N/A	0.2	0.4	N/A	0.2	5.2	16.8	6.0
19	Fluorene	1.7	ug/L	0.3	N/A	0.2	0.3	N/A	0.2	5.6	10.7	2.2
19	Indole	1.9	ug/L	7.5	38.3	19.2	1.2	N/A	0.2	437.0	2115.8	1472.0
19	Naphthalene	1.6	ug/L	0.3	N/A	0.2	0.4	N/A	0.2	5.8	19.0	8.4
19	Phenanthrene	0.4	ug/L	0.3	N/A	0.2	0.3	N/A	0.2	4.1	8.2	2.6
20	Phenol	2.4	ug/L	1.1	N/A	0.8	1.1	N/A	0.8	36.0	460.0	80.0
20	m–Cresol	3.4	ug/L	3.0	N/A	0.2	3.0	N/A	0.2	5.5	15.4	3.0
20	o–Cresol	3.7	ug/L	1.7	N/A	0.2	1.7	N/A	0.2	5.1	17.5	2.2
20	p–Cresol	3.5	ug/L	3.5	N/A	0.2	3.5	N/A	0.2	5.6	15.4	1.4
25	Oil and grease	1.0	mg/L	1.3	6.9	1.0	8.9	55.0	15.0	5.9	21.4	no data

EXPLANATORY NOTES:
(i) MOE data refers to Ministry Inspection Data
(ii) Parameters for which either plant or MOE data were not available, are not listed.
(iii) Plant LTA results are Twelve–Month Average Concentration Results.
(iv) "N/A" – no 99th percentile value calculated
(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.

Sampling Points
CO 0100 – Final Effluent to River
PR 0200 – Neutralization Pit Effluent flows into CO 0100
PR 0300 – TEL Process Effluent flows into CO 0100

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – G.E. PLASTICS CANADA LTD. – COBOURG

				CONTROL POINT 0100			CONTROL POINT 0400		
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE	LTA	99th Per	MOE
1	COD	10.0	mg/L	56.0	N/A	84.0	no data	N/A	40.0
2	Cyanide Total	0.005	mg/L	0.088	0.378	0.020	0.003	0.014	no data
3	Hydrogen ion (pH)			7.8	8.8	7.7	7.7	8.6	8.2
4	Ammonia plus Ammonium	0.25	mg/L	20.18	69.93	0.10	5.45	106.61	0.10
4	Nitrate+Nitrite	0.25	mg/L	24.41	79.69	58.70	2.01	18.11	0.25
4	Total Kjeldahl nitrogen	0.5	mg/L	24.4	818.7	4.0	9.8	219.0	0.4
5	DOC	1.0	mg/L	16.5	76.5	16.5	10.6	58.6	2.1
5	TOC	5.0	mg/L	28.6	110.7	26.0	8.7	47.1	3.0
6	Total phosphorus	0.10	mg/L	0.51	3.58	0.46	0.81	16.38	0.06
7	Specific conductance	500.0	uS/cm	2302.9	3190.7	2550.0	532.4	849.0	322.0
8	Total suspended solids	5.0	mg/L	25.8	128.4	29.6	8.9	41.6	2.3
8	Volatile suspended solids	10.0	mg/L	23.3	133.0	20.4	no data	N/A	0.5
9	Aluminum	30.0	ug/L	235.9	1253.3	210.0	94.3	227.0	230.0
9	Cadmium	2.0	ug/L	1.4	7.3	0.8	2.2	5.9	0.6
9	Zinc	10.0	ug/L	10.3	43.2	19.0	47.8	429.8	31.0
10	Antimony	5.0	ug/L	62.5	322.9	40.0	14.4	39.0	2.0
12	Mercury	0.10	ug/L	0.05	0.31	0.03	0.16	0.95	no data
14	Phenolics (4AAP)	2.0	ug/L	43.3	116.5	1.0	4710.4	130307.9	85.6
15	Sulphide	20.0	ug/L	120.0	N/A	11.5	no data	N/A	2.0
17	o–Xylene	0.5	ug/L	0.5	0.9	0.2	0.4	N/A	no data
25	Oil and grease	1.0	mg/L	2.5	9.4	1.0	3.5	20.4	1.0

EXPLANATORY NOTES:
(i) MOE data refers to Ministry Inspection Data.
(ii) Parameters for which either plant or MOE data were not available, are not listed.
(iii) Plant LTA results are Twelve–Month Average Concentration Results.
(iv) "N/A" – no 99th percentile value calculated
(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.

Sampling Points
CO 0100 – Clarifier Effluent to Lake
OT 0400 – Cooling Water to Lake

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – GUARDSMAN PRODUCTS LTD. – CORNWALL

				CONTROL POINT 0100		
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE
3	Hydrogen ion (pH)			6.1	8.1	8.1
5	DOC	1.0	mg/L	4.5	11.6	3.4
5	TOC	5.0	mg/L	5.0	11.8	4.0
6	Total phosphorus	0.10	mg/L	0.12	0.30	0.02
7	Specific conductance	500.0	uS/cm	1977.1	11193.0	316.0
8	Total suspended solids	5.0	mg/L	3.2	N/A	1.2
8	Volatile suspended solids	10.0	mg/L	3.9	N/A	1.0
9	Aluminum	30.0	ug/L	59.8	737.2	250.0
9	Beryllium	10.0	ug/L	6.2	10.0	0.1
9	Cadmium	2.0	ug/L	3.1	17.0	0.8
9	Copper	10.0	ug/L	8.8	10.0	6.2
9	Molybdenum	20.0	ug/L	19.2	46.5	4.1
9	Zinc	10.0	ug/L	20.4	91.6	28.0
17	Toluene	0.5	ug/L	5.2	N/A	310.0
25	Oil and grease	1.0	mg/L	0.9	N/A	2.0

EXPLANATORY NOTES:
(i) MOE data refers to Ministry Inspection Data.
(ii) Parameters for which either plant or MOE data were not available, are not listed.
(iii) Plant LTA results are Twelve–Month Average Concentration Results.
(iv) "N/A" – no 99th percentile value calculated
(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.

Sampling Points
OT 0100 – Southeast Drain to River

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – MORBERN INC. – CORNWALL

				CONTROL POINT 0100		
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE
3	Hydrogen ion (pH)			8.0	8.3	8.1
5	DOC	1.0	mg/L	2.6	4.1	3.1
5	TOC	5.0	mg/L	2.8	4.6	4.0
6	Total phosphorus	0.10	mg/L	0.03	0.10	0.04
7	Specific conductance	500.0	uS/cm	298.5	360.7	311.0
8	Total suspended solids	5.0	mg/L	3.2	N/A	1.2
8	Volatile suspended solids	10.0	mg/L	3.9	N/A	1.2
9	Aluminum	30.0	ug/L	121.2	327.5	150.0
9	Boron	50.0	ug/L	61.4	326.4	60.0
9	Copper	10.0	ug/L	14.1	101.1	18.0
9	Zinc	10.0	ug/L	42.8	155.8	26.0
14	Phenolics (4AAP)	2.0	ug/L	57.3	731.6	90.0
16	1,2–Dichloroethane	0.8	ug/L	0.6	N/A	0.5
16	Bromodichloromethane	0.8	ug/L	6.8	16.9	0.5
16	Chloroform	0.7	ug/L	9.1	28.5	10.0
16	Dibromochloromethane	1.1	ug/L	4.4	12.1	3.0
17	Benzene	0.5	ug/L	0.7	4.5	0.2
17	Toluene	0.5	ug/L	1.0	7.8	0.4
17	o–Xylene	0.5	ug/L	0.7	4.7	0.2
25	Oil and grease	1.0	mg/L	1.2	2.0	1.0

EXPLANATORY NOTES:
(i) MOE data refers to Ministry Inspection Data.
(ii) Parameters for which either plant or MOE data were not available, are not listed.
(iii) Plant LTA results are Twelve–Month Average Concentration Results.
(iv) "N/A" – no 99th percentile value calculated
(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.

Sampling Points
OT 0100 – East Cooling Water to River

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – NOVACOR CHEMICALS LTD. – MOORETOWN

				CONTROL POINT 0100		
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE
1	COD	10.0	mg/L	25.5	N/A	26.0
2	Cyanide Total	0.005	mg/L	0.002	N/A	0.003
3	Hydrogen ion (pH)			8.2	9.0	8.1
4	Ammonia plus Ammonium	0.25	mg/L	0.42	N/A	0.60
4	Nitrate+Nitrite	0.25	mg/L	0.66	N/A	0.60
4	Total Kjeldahl nitrogen	0.5	mg/L	1.4	N/A	1.5
5	DOC	1.0	mg/L	5.1	10.2	5.6
5	TOC	5.0	mg/L	6.7	14.7	9.0
6	Total phosphorus	0.10	mg/L	0.41	1.18	0.84
7	Specific conductance	500.0	uS/cm	616.5	929.8	750.0
8	Total suspended solids	5.0	mg/L	15.0	59.3	17.4
8	Volatile suspended solids	10.0	mg/L	6.0	N/A	9.0
9	Aluminum	30.0	ug/L	541.7	1709.3	470.0
9	Zinc	10.0	ug/L	34.3	178.3	26.0
14	Phenolics (4AAP)	2.0	ug/L	1.7	9.3	2.0
15	Sulphide	20.0	ug/L	44.5	N/A	3.0
16	Bromodichloromethane	0.8	ug/L	0.4	N/A	0.5
16	Chloroform	0.7	ug/L	0.4	N/A	8.0
16	Dibromochloromethane	1.1	ug/L	0.4	N/A	2.0
19	Bis(2–ethylhexyl) phthalate	2.2	ug/L	2.0	N/A	1.0
25	Oil and grease	1.0	mg/L	1.3	3.5	2.0

EXPLANATORY NOTES:
(i) MOE data refers to Ministry Inspection Data.
(ii) Parameters for which either plant or MOE data were not available, are not listed.
(iii) Plant LTA results are Twelve–Month Average Concentration Results.
(iv) "N/A" – no 99th percentile value calculated
(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.

Sampling Points
CO 0100 – Final Effluent to River

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – POLYSAR LTD. – SARNIA

				CONTROL POINT 0200			CONTROL POINT 0300			CONTROL POINT 0400		
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE	LTA	99th Per	MOE	LTA	99th Per	MOE
1	COD	10.0	mg/L	10.0	N/A	4.0	10.8	N/A	20.0	9.3	N/A	6.0
2	Cyanide Total	0.005	mg/L	<0.001	N/A	0.001	<0.001	N/A	0.001	0.001	N/A	0.001
3	Hydrogen Ion (pH)			8.2	8.5	8.2	7.6	8.3	7.6	8.2	8.6	8.2
4	Ammonia plus Ammonium	0.25	mg/L	0.11	0.77	0.05	0.16	0.31	0.05	0.08	0.23	0.05
4	Nitrate+Nitrite	0.25	mg/L	0.34	0.53	0.40	0.23	2.00	0.05	0.25	0.56	0.40
4	Total Kjeldahl nitrogen	0.5	mg/L	0.3	0.6	0.1	0.3	1.2	0.6	0.2	N/A	0.2
5	DOC	1.0	mg/L	2.9	11.2	1.6	4.7	13.1	4.0	2.8	11.5	1.9
5	TOC	5.0	mg/L	7.8	N/A	1.7	5.1	9.3	4.0	7.9	N/A	2.0
6	Total phosphorus	0.10	mg/L	0.10	0.54	0.02	0.28	1.24	0.34	0.10	0.53	0.02
7	Specific conductance	500.0	uS/cm	230.0	379.3	224.0	239.0	297.6	246.0	233.9	309.1	237.0
8	Total suspended solids	5.0	mg/L	4.7	15.3	3.7	36.3	196.0	40.2	4.3	9.7	3.0
8	Volatile suspended solids	10.0	mg/L	3.6	N/A	2.2	7.9	N/A	14.8	3.6	N/A	2.4
9	Aluminum	30.0	ug/L	190.8	508.2	140.0	7649.6	79392.1	5000.0	96.1	374.3	50.0
9	Boron	50.0	ug/L	13.2	18.5	2.0	12.5	17.5	2.0	12.9	21.2	2.1
9	Cobalt	20.0	ug/L	12.3	22.3	10.0	468.5	901.4	480.0	2.4	3.0	1.6
9	Molybdenum	20.0	ug/L	3.0	N/A	0.5	3.0	N/A	1.9	3.0	N/A	7.5
9	Nickel	20.0	ug/L	9.0	N/A	1.0	9.8	16.3	1.0	9.0	N/A	1.0
9	Zinc	10.0	ug/L	5.8	10.0	2.0	9.3	26.8	4.7	17.6	102.0	9.0
10	Antimony	5.0	ug/L	3.3	N/A	1.0	6.3	N/A	1.0	9.0	28.2	1.0
14	Phenolics (4AAP)	2.0	ug/L	3.1	13.0	2.4	10.5	58.3	37.0	1.4	4.6	0.6
15	Sulphide	20.0	ug/L	32.3	N/A	0.0	37.3	N/A	0.0	32.5	N/A	0.0
16	1,1,2,2–Tetrachloroethane	4.3	ug/L	0.4	N/A	1.0	1.6	N/A	1.0	3.5	N/A	1.0
16	1,1,2–Trichloroethane	0.6	ug/L	0.6	N/A	0.2	2.3	N/A	1.2	3.6	N/A	0.2
16	1,1–Dichloroethane	0.8	ug/L	0.5	N/A	0.5	2.0	N/A	0.5	2.8	N/A	0.5
16	1,1–Dichloroethylene	2.8	ug/L	0.4	N/A	0.5	1.8	N/A	0.5	3.9	N/A	0.5
16	1,2–Dichlorobenzene	1.4	ug/L	0.4	N/A	0.5	1.7	N/A	0.5	3.0	N/A	0.5
16	1,2–Dichloroethane	0.8	ug/L	0.4	N/A	0.5	1.7	N/A	0.5	2.5	N/A	0.5
16	1,2–Dichloropropane	0.9	ug/L	0.5	N/A	1.0	2.2	N/A	1.0	3.5	N/A	1.0
16	1,3–Dichlorobenzene	1.1	ug/L	0.3	N/A	0.5	1.4	N/A	0.5	2.7	N/A	0.5
16	1,4–Dichlorobenzene	1.7	ug/L	0.2	N/A	1.0	1.0	N/A	1.0	2.4	N/A	1.0
16	Bromodichloromethane	0.8	ug/L	1.6	17.2	0.5	7.4	N/A	1.0	4.4	36.1	0.5
16	Bromoform	3.7	ug/L	0.4	N/A	1.0	1.6	N/A	1.0	2.8	N/A	1.0
16	Carbon tetrachloride	1.3	ug/L	0.3	N/A	0.5	1.3	N/A	0.5	2.7	N/A	0.5
16	Chlorobenzene	0.7	ug/L	0.6	N/A	0.2	2.4	N/A	0.2	3.1	N/A	0.2
16	Chloroform	0.7	ug/L	1.4	14.1	5.0	27.1	556.9	1.2	3.2	11.0	1.0
16	Chloromethane	3.7	ug/L	2.2	N/A	420.0	166.9	N/A	200.0	1194.3	12181.9	2400.0
16	Cis–1,3–Dichloropropylene	1.4	ug/L	0.7	N/A	1.0	2.9	N/A	1.0	4.0	N/A	1.0
16	Dibromochloromethane	1.1	ug/L	0.6	2.1	1.0	1.8	N/A	0.5	3.3	N/A	0.5

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – POLYSAR LTD. – SARNIA

				CONTROL POINT 0200			CONTROL POINT 0300			CONTROL POINT 0400		
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE	LTA	99th Per	MOE	LTA	99th Per	MOE
16	Ethylene dibromide	1.0	ug/L	0.6	N/A	0.5	2.3	N/A	0.5	3.6	N/A	0.5
16	Methylene chloride	1.3	ug/L	2.3	150.3	0.5	39.6	952.2	0.5	7.1	N/A	2.0
16	Tetrachloroethylene	1.1	ug/L	0.2	N/A	0.5	0.8	N/A	0.5	2.8	N/A	0.5
16	Trans–1,2–Dichloroethylene	1.4	ug/L	0.4	N/A	0.5	1.7	N/A	0.5	2.5	N/A	0.5
16	Trans–1,3–Dichloropropylene	1.4	ug/L	1.1	N/A	1.0	4.4	N/A	1.0	5.4	N/A	1.0
16	Trichloroethylene	1.9	ug/L	0.3	N/A	1.0	1.3	N/A	1.0	2.7	N/A	1.0
16	Trichlorofluoromethane	1.0	ug/L	0.3	N/A	1.0	1.5	N/A	1.0	5.4	N/A	1.0
16	Vinyl chloride	4.0	ug/L	2.8	N/A	1.0	11.7	N/A	1.0	15.0	N/A	1.0
17	Benzene	0.5	ug/L	65.3	446.9	35.0	2384.5	24459.8	135.0	61.0	1669.2	1.0
17	Ethylbenzene	0.6	ug/L	0.4	N/A	0.2	1.6	N/A	0.2	3.2	7.9	0.2
17	Styrene	0.5	ug/L	0.4	N/A	0.2	1.5	N/A	0.2	2.5	N/A	0.2
17	Toluene	0.5	ug/L	1.8	38.5	0.6	26.7	498.1	0.4	16.1	19.3	0.8
17	m–Xylene and p–Xylene	1.1	ug/L	0.6	N/A	0.5	2.6	6.6	0.5	4.9	N/A	0.5
17	o–Xylene	0.5	ug/L	0.4	N/A	0.2	1.7	N/A	0.2	2.5	N/A	0.2
18	Acrolein	4.0	ug/L	3.0	N/A	1.0	13.5	N/A	1.0	17.6	N/A	1.0
18	Acrylonitrile	4.2	ug/L	1.9	N/A	1.0	8.5	N/A	1.0	11.2	N/A	1.0
19	Bis(2–ethylhexyl) phthalate	2.2	ug/L	2.3	N/A	1.0	1.4	N/A	2.0	2.3	N/A	1.0
23	1,2,4–Trichlorobenzene	10.0	ng/L	6.7	N/A	2.0	31.1	N/A	2.0	113.9	N/A	2.0
23	2,4,5–Trichlorotoluene	10.0	ng/L	8.0	N/A	1.0	3.0	N/A	1.0	3.1	N/A	1.0
23	Hexachlorobenzene	10.0	ng/L	5.9	N/A	1.0	6.4	N/A	1.0	7.5	N/A	1.0
23	Hexachlorobutadiene	10.0	ng/L	19.8	80.0	4.0	4.5	43.1	1.0	5.9	24.4	5.0
23	Hexachloroethane	10.0	ng/L	14.0	N/A	1.0	5.8	N/A	1.0	28.7	N/A	1.0
23	Octachlorostyrene	10.0	ng/L	3.5	N/A	1.0	2.7	N/A	1.0	2.8	N/A	1.0
23	Pentachlorobenzene	10.0	ng/L	3.0	N/A	1.0	2.4	N/A	1.0	2.3	N/A	1.0
25	Oil and grease	1.0	mg/L	1.2	4.6	no data	2.1	35.0	4.0	1.2	8.1	no data

EXPLANATORY NOTES:
(i) MOE data refers to Ministry Inspection Data.
(ii) Parameters for which either plant or MOE data were not available, are not listed.
(iii) Plant LTA results are Twelve–Month Average Concentration Results.
(iv) "N/A" – no 99th percentile value calculated
(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.

Sampling Points
CO 0200 – 72 inch Sewer to River
PR 0300 – Crumb Separator flows into CO 0200
CO 0400 – 66 inch Sewer to River
CO 0500 – 54 inch Sewer to River
PR 0900 – Butyl II flows into CO 0400
@@ CO 1100 – Cole Drain to River draining numerous plant sites – monitored by Polysar
BA 1700 – Neutralization Sump to River
PR 1800 – Blox Effluent to River

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – POLYSAR LTD. – SARNIA

				CONTROL POINT 0500			CONTROL POINT 0900			@@ CONTROL POINT 1100		
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE	LTA	99th Per	MOE	LTA	99th Per	MOE
1	COD	10.0	mg/L	21.5	56.3	6.0	45.3	91.8	50.0	14.8	N/A	6.0
2	Cyanide Total	0.005	mg/L	0.001	N/A	0.001	0.001	0.002	0.001	0.001	0.002	0.001
3	Hydrogen Ion (pH)			8.3	9.1	8.3	7.6	9.1	7.3	8.2	8.7	8.2
4	Ammonia plus Ammonium	0.25	mg/L	0.06	N/A	0.05	0.13	1.03	0.05	0.09	0.11	0.05
4	Nitrate+Nitrite	0.25	mg/L	0.33	0.57	0.40	0.09	N/A	0.05	0.45	1.14	0.50
4	Total Kjeldahl nitrogen	0.5	mg/L	0.2	N/A	0.1	0.8	4.1	1.1	0.3	N/A	0.1
5	DOC	1.0	mg/L	2.7	11.4	1.7	10.8	34.5	8.0	3.2	12.1	2.1
5	TOC	5.0	mg/L	7.9	N/A	2.0	13.2	32.7	8.0	3.5	6.8	3.0
6	Total phosphorus	0.10	mg/L	0.11	0.53	0.08	0.36	1.68	0.34	0.10	0.38	0.02
7	Specific conductance	500.0	uS/cm	230.3	260.5	233.0	467.2	936.0	438.0	304.1	475.4	308.0
8	Total suspended solids	5.0	mg/L	4.4	12.3	3.6	24.2	113.3	31.2	6.3	36.9	2.8
8	Volatile suspended solids	10.0	mg/L	3.8	N/A	1.9	4.9	6.0	17.9	3.8	N/A	1.7
9	Aluminum	30.0	ug/L	55.0	172.5	52.0	3443.1	25972.1	950.0	118.2	342.1	60.0
9	Boron	50.0	ug/L	13.8	23.5	2.2	17.1	32.8	4.1	43.3	98.8	4.8
9	Cobalt	20.0	ug/L	2.3	N/A	0.5	2.3	4.0	1.3	2.4	4.0	2.6
9	Molybdenum	20.0	ug/L	3.0	N/A	4.8	3.1	N/A	4.8	3.0	N/A	6.8
9	Nickel	20.0	ug/L	9.0	N/A	1.0	9.0	N/A	1.0	9.0	N/A	1.0
9	Zinc	10.0	ug/L	8.5	29.8	2.0	717.9	5602.2	430.0	8.3	26.2	6.2
10	Antimony	5.0	ug/L	4.8	N/A	1.0	4.7	12.1	1.0	4.8	13.0	1.0
14	Phenolics (4AAP)	2.0	ug/L	2.2	9.3	1.2	9.7	39.3	7.8	2.4	9.8	0.8
15	Sulphide	20.0	ug/L	40.0	72.9	2.0	127.5	845.2	178.0	60.0	187.2	2.5
16	1,1,2,2–Tetrachloroethane	4.3	ug/L	0.4	N/A	1.0	20.0	N/A	1.0	0.4	N/A	1.0
16	1,1,2–Trichloroethane	0.6	ug/L	0.6	N/A	0.2	29.4	N/A	0.2	0.6	N/A	0.3
16	1,1–Dichloroethane	0.8	ug/L	0.5	N/A	0.5	24.9	N/A	0.5	0.5	N/A	0.5
16	1,1–Dichloroethylene	2.8	ug/L	0.4	N/A	0.5	95.4	N/A	0.5	0.4	N/A	0.5
16	1,2–Dichlorobenzene	1.4	ug/L	0.4	N/A	0.5	21.3	N/A	0.5	0.4	N/A	0.5
16	1,2–Dichloroethane	0.8	ug/L	0.4	N/A	0.5	21.5	N/A	0.5	0.4	N/A	0.5
16	1,2–Dichloropropane	0.9	ug/L	0.5	N/A	1.0	28.2	N/A	1.0	0.5	N/A	1.0
16	1,3–Dichlorobenzene	1.1	ug/L	0.3	N/A	0.5	17.8	N/A	0.5	0.3	N/A	0.5
16	1,4–Dichlorobenzene	1.7	ug/L	0.2	N/A	1.0	13.9	N/A	1.0	0.2	N/A	1.0
16	Bromodichloromethane	0.8	ug/L	2.8	29.3	0.5	35.3	N/A	0.5	1.1	N/A	0.7
16	Bromoform	3.7	ug/L	0.4	N/A	1.0	17.9	N/A	1.0	3.0	N/A	1.0
16	Carbon tetrachloride	1.3	ug/L	0.3	N/A	0.5	16.7	N/A	0.5	0.3	N/A	0.5
16	Chlorobenzene	0.7	ug/L	0.6	N/A	0.2	29.5	N/A	0.2	0.6	N/A	0.2
16	Chloroform	0.7	ug/L	5.8	76.4	2.0	67.7	1430.1	1.0	1.5	31.6	2.0
16	Chloromethane	3.7	ug/L	2.6	N/A	1.0	56526.1	851054.5	14280.0	2.4	N/A	1.0
16	Cis–1,3–Dichloropropylene	1.4	ug/L	0.7	N/A	1.0	35.1	N/A	1.0	0.7	N/A	1.0
16	Dibromochloromethane	1.1	ug/L	2.6	42.0	0.5	28.3	N/A	0.5	1.3	N/A	0.5

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – POLYSAR LTD. – SARNIA

				CONTROL POINT 0500			CONTROL POINT 0900			@@ CONTROL POINT 1100		
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE	LTA	99th Per	MOE	LTA	99th Per	MOE
16	Ethylene dibromide	1.0	ug/L	0.6	N/A	0.5	29.4	N/A	0.5	0.6	N/A	0.5
16	Methylene chloride	1.3	ug/L	0.4	N/A	0.5	200.8	1768.5	0.5	0.3	N/A	1.0
16	Tetrachloroethylene	1.1	ug/L	0.2	N/A	0.5	11.0	N/A	0.5	0.2	0.5	0.5
16	Trans–1,2–Dichloroethylene	1.4	ug/L	0.4	N/A	0.5	21.5	N/A	0.5	0.4	N/A	0.5
16	Trans–1,3–Dichloropropylene	1.4	ug/L	1.1	N/A	1.0	53.5	N/A	1.0	1.1	N/A	1.0
16	Trichloroethylene	1.9	ug/L	0.3	N/A	1.0	16.7	N/A	1.0	0.3	N/A	1.0
16	Trichlorofluoromethane	1.0	ug/L	0.3	N/A	1.0	21.5	N/A	1.0	0.3	N/A	1.0
16	Vinyl chloride	4.0	ug/L	2.8	N/A	1.0	146.7	N/A	1.0	3.1	N/A	1.0
17	Benzene	0.5	ug/L	0.8	8.6	0.4	247.5	2999.9	0.4	0.8	6.0	2.0
17	Ethylbenzene	0.6	ug/L	0.7	N/A	0.2	19.0	N/A	0.4	0.4	0.9	0.6
17	Styrene	0.5	ug/L	0.4	N/A	0.2	18.1	N/A	0.7	1.5	10.6	4.0
17	Toluene	0.5	ug/L	2.5	46.8	0.2	90.7	2300.0	0.7	1.5	24.0	1.0
17	m–Xylene and p–Xylene	1.1	ug/L	0.7	5.2	0.5	56.7	56.4	0.5	0.5	N/A	0.5
17	o–Xylene	0.5	ug/L	0.4	N/A	0.2	37.0	N/A	0.2	0.4	N/A	0.2
18	Acrolein	4.0	ug/L	3.6	9.8	1.0	150.6	N/A	1.0	3.8	10.4	1.0
18	Acrylonitrile	4.2	ug/L	1.9	N/A	1.0	97.0	N/A	1.0	1.9	N/A	1.0
19	Bis(2–ethylhexyl) phthalate	2.2	ug/L	1.4	N/A	1.0	1.8	N/A	1.0	1.5	N/A	1.0
23	1,2,4–Trichlorobenzene	10.0	ng/L	8.2	N/A	2.0	6.1	N/A	2.0	7.2	N/A	2.0
23	2,4,5–Trichlorotoluene	10.0	ng/L	3.2	N/A	1.0	3.3	N/A	1.0	110.1	870.1	60.0
23	Hexachlorobenzene	10.0	ng/L	4.0	N/A	1.0	3.4	N/A	4.0	16.5	124.6	11.0
23	Hexachlorobutadiene	10.0	ng/L	7.9	18.5	4.0	2.6	N/A	1.0	74.7	957.8	530.0
23	Hexachloroethane	10.0	ng/L	4.1	N/A	1.0	5.8	N/A	1.0	13.2	70.0	50.0
23	Octachlorostyrene	10.0	ng/L	2.8	N/A	1.0	2.7	N/A	1.0	10.7	45.5	1.0
23	Pentachlorobenzene	10.0	ng/L	2.8	N/A	1.0	2.1	N/A	1.0	9.7	37.5	10.0
25	Oil and grease	1.0	mg/L	1.5	13.0	no data	5.7	21.2	8.0	1.5	27.0	1.0

EXPLANATORY NOTES:
(i) MOE data refers to Ministry Inspection Data.
(ii) Parameters for which either plant or MOE data were not available, are not listed.
(iii) Plant LTA results are Twelve–Month Average Concentration Results.
(iv) 'N/A' – no 99th percentile value calculated
(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.

Sampling Points
CO 0200 – 72 inch Sewer to River
PR 0300 – Crumb Separator flows into CO 0200
CO 0400 – 66 inch Sewer to River
CO 0500 – 54 inch Sewer to River
PR 0900 – Butyl II flows into CO 0400
@@ CO 1100 – Cole Drain to River draining numerous plant sites – monitored by Polysar
BA 1700 – Neutralization Sump to River
PR 1800 – Biox Effluent to River

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – POLYSAR LTD. – SARNIA

				CONTROL POINT 1700			CONTROL POINT 1800		
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE	LTA	99th Per	MOE
1	COD	10.0	mg/L	18.0	34.2	10.0	69.0	416.3	102.0
2	Cyanide Total	0.005	mg/L	0.028	N/A	0.001	0.003	0.012	0.001
3	Hydrogen Ion (pH)			7.7	9.9	7.2	7.6	8.2	7.5
4	Ammonia plus Ammonium	0.25	mg/L	1.78	2.80	1.65	1.57	14.42	0.10
4	Nitrate+Nitrite	0.25	mg/L	2.75	4.54	0.25	2.15	34.01	2.60
4	Total Kjeldahl nitrogen	0.5	mg/L	2.0	3.7	4.0	2.3	11.0	0.8
5	DOC	1.0	mg/L	8.9	21.2	7.0	16.7	58.1	13.0
5	TOC	5.0	mg/L	8.0	14.4	7.0	15.2	49.4	19.0
6	Total phosphorus	0.10	mg/L	0.12	0.42	0.04	0.71	3.50	1.02
7	Specific conductance	500.0	uS/cm	5099.4	7215.0	8560.0	2536.4	3640.3	2220.0
8	Total suspended solids	5.0	mg/L	13.4	62.3	9.5	14.9	65.7	26.4
8	Volatile suspended solids	10.0	mg/L	4.3	N/A	3.8	7.7	29.4	14.7
9	Aluminum	30.0	ug/L	164.7	1300.0	61.0	1453.7	9891.5	2200.0
9	Boron	50.0	ug/L	65.5	125.9	4.2	31.6	58.0	4.1
9	Cobalt	20.0	ug/L	5.2	19.9	1.0	2.2	4.0	1.0
9	Molybdenum	20.0	ug/L	3.6	N/A	1.5	14.9	65.3	17.0
9	Nickel	20.0	ug/L	9.1	N/A	1.0	23.3	70.0	1.0
9	Zinc	10.0	ug/L	17.1	62.9	21.0	20.0	78.3	8.8
10	Antimony	5.0	ug/L	17.3	39.5	1.0	5.4	16.1	1.0
14	Phenolics (4AAP)	2.0	ug/L	16.3	30.1	32.0	10.1	38.1	1.8
15	Sulphide	20.0	ug/L	55.0	208.1	0.0	125.0	1150.6	9.0
16	1,1,2,2–Tetrachloroethane	4.3	ug/L	0.4	N/A	1.0	0.8	N/A	10.0
16	1,1,2–Trichloroethane	0.6	ug/L	0.6	N/A	0.2	0.9	N/A	2.0
16	1,1–Dichloroethane	0.8	ug/L	0.5	N/A	0.5	0.7	N/A	5.0
16	1,1–Dichloroethylene	2.8	ug/L	0.4	N/A	0.5	0.7	N/A	5.0
16	1,2–Dichlorobenzene	1.4	ug/L	0.4	N/A	0.5	0.7	N/A	5.0
16	1,2–Dichloroethane	0.8	ug/L	0.4	N/A	0.5	0.6	1.9	5.0
16	1,2–Dichloropropane	0.9	ug/L	0.5	N/A	1.0	0.8	N/A	10.0
16	1,3–Dichlorobenzene	1.1	ug/L	0.3	N/A	0.5	0.6	N/A	5.0
16	1,4–Dichlorobenzene	1.7	ug/L	0.2	N/A	1.0	0.5	N/A	10.0
16	Bromodichloromethane	0.8	ug/L	0.4	N/A	0.5	0.7	N/A	5.0
16	Bromoform	3.7	ug/L	0.4	N/A	1.0	9.8	121.5	20.0
16	Carbon tetrachloride	1.3	ug/L	0.3	N/A	0.5	0.6	N/A	5.0
16	Chlorobenzene	0.7	ug/L	0.6	N/A	0.2	0.8	N/A	2.0
16	Chloroform	0.7	ug/L	0.5	N/A	2.0	7.5	72.6	2.0
16	Chloromethane	3.7	ug/L	2.3	N/A	1.0	4.0	28.7	1.0
16	Cis–1,3–Dichloropropylene	1.4	ug/L	0.7	N/A	1.0	1.0	N/A	10.0
16	Dibromochloromethane	1.1	ug/L	0.4	N/A	0.5	0.9	7.5	5.0

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – POLYSAR LTD. – SARNIA

				CONTROL POINT 1700			CONTROL POINT 1800		
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE	LTA	99th Per	MOE
16	Ethylene dibromide	1.0	ug/L	0.6	N/A	0.5	0.9	N/A	5.0
16	Methylene chloride	1.3	ug/L	0.3	N/A	0.5	2.1	2.3	5.0
16	Tetrachloroethylene	1.1	ug/L	0.2	N/A	0.5	0.6	N/A	5.0
16	Trans–1,2–Dichloroethylene	1.4	ug/L	0.4	N/A	0.5	0.6	N/A	5.0
16	Trans–1,3–Dichloropropylene	1.4	ug/L	1.1	N/A	1.0	1.3	N/A	10.0
16	Trichloroethylene	1.9	ug/L	0.3	N/A	1.0	0.6	N/A	10.0
16	Trichlorofluoromethane	1.0	ug/L	0.3	N/A	1.0	1.1	N/A	10.0
16	Vinyl chloride	4.0	ug/L	2.9	N/A	1.0	3.7	N/A	1.0
17	Benzene	0.5	ug/L	0.4	N/A	0.2	1.6	19.0	2.0
17	Ethylbenzene	0.6	ug/L	1.2	N/A	0.2	0.7	6.6	2.0
17	Styrene	0.5	ug/L	0.4	N/A	0.2	0.6	N/A	2.0
17	Toluene	0.5	ug/L	0.4	N/A	0.2	1.4	19.5	2.0
17	m–Xylene and p–Xylene	1.1	ug/L	0.5	N/A	0.5	1.1	1.4	5.0
17	o–Xylene	0.5	ug/L	0.4	N/A	0.2	0.6	N/A	2.0
18	Acrolein	4.0	ug/L	3.0	N/A	1.0	4.2	N/A	10.0
18	Acrylonitrile	4.2	ug/L	1.9	N/A	1.0	2.8	N/A	10.0
19	Bis(2–ethylhexyl) phthalate	2.2	ug/L	15.1	N/A	1.0	7.2	45.5	1.0
23	1,2,4–Trichlorobenzene	10.0	ng/L	11.1	N/A	2.0	15.0	18.7	2.0
23	2,4,5–Trichlorotoluene	10.0	ng/L	2.7	N/A	1.0	4.8	16.4	1.0
23	Hexachlorobenzene	10.0	ng/L	3.5	N/A	1.0	3.5	N/A	1.0
23	Hexachlorobutadiene	10.0	ng/L	2.5	N/A	1.0	4.5	21.9	1.0
23	Hexachloroethane	10.0	ng/L	1.7	N/A	1.0	6.7	70.0	1.0
23	Octachlorostyrene	10.0	ng/L	2.6	N/A	1.0	2.7	N/A	1.0
23	Pentachlorobenzene	10.0	ng/L	2.1	N/A	1.0	3.0	20.9	1.0
25	Oil and grease	1.0	mg/L	3.5	108.0	no data	3.8	10.7	no data

EXPLANATORY NOTES:
(i) MOE data refers to Ministry Inspection Data.
(ii) Parameters for which either plant or MOE data were not available, are not listed.
(iii) Plant LTA results are Twelve–Month Average Concentration Results.
(iv) 'N/A' – no 99th percentile value calculated
(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.

Sampling Points
CO 0200 – 72 Inch Sewer to River
PR 0300 – Crumb Separator flows into CO 0200
CO 0400 – 66 Inch Sewer to River
CO 0500 – 54 Inch Sewer to River
PR 0900 – Butyl II flows into CO 0400
@@ CO 1100 – Cole Drain to River draining numerous plant sites – monitored by Polysar
BA 1700 – Neutralization Sump to River
PR 1800 – Blox Effluent to River

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – ROHM AND HAAS CANADA INC. – MORRISBURG

				CONTROL POINT 0100			
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE 1	MOE 2
1	COD	10.0	mg/L	128.0	549.5	22.0	10.0
2	Cyanide Total	0.005	mg/L	0.005	0.009	0.003	0.002
3	Hydrogen ion (pH)			7.9	8.5	8.1	8.4
4	Ammonia plus Ammonium	0.25	mg/L	0.44	4.48	0.20	0.40
4	Nitrate+Nitrite	0.25	mg/L	0.28	4.15	0.40	0.15
4	Total Kjeldahl nitrogen	0.5	mg/L	1.1	2.8	0.9	0.8
5	DOC	1.0	mg/L	9.9	53.5	3.6	3.0
5	TOC	5.0	mg/L	15.8	62.6	7.0	2.0
6	Total phosphorus	0.10	mg/L	0.2	0.8	0.1	1.4
7	Specific conductance	500.0	uS/cm	438.1	727.4	394.0	473.0
8	Total suspended solids	5.0	mg/L	6.5	28.8	5.6	3.6
8	Volatile suspended solids	10.0	mg/L	4.0	N/A	3.2	1.9
9	Aluminum	30.0	ug/L	32.1	87.5	66.0	5.0
9	Copper	10.0	ug/L	15.9	47.9	9.9	9.9
9	Zinc	10.0	ug/L	12.8	41.9	30.0	12.0
14	Phenolics (4AAP)	2.0	ug/L	3.8	12.4	3.2	1.6
15	Sulphide	20.0	ug/L	42.3	143.8	2.0	2.0
16	Bromodichloromethane	0.8	ug/L	3.7	18.8	0.5	8.0
16	Chloroform	0.7	ug/L	17.8	157.8	7.0	10.0
16	Dibromochloromethane	1.1	ug/L	1.5	8.3	0.5	5.0
17	Ethylbenzene	0.6	ug/L	0.9	26.9	0.6	0.2
17	Toluene	0.5	ug/L	85.3	1629.9	110.0	0.2
17	m–Xylene and p–Xylene	1.1	ug/L	3.0	78.3	2.0	0.5
17	o–Xylene	0.5	ug/L	2.7	71.3	2.0	0.2
25	Oil and grease	1.0	mg/L	1.7	6.1	1.0	1.0

EXPLANATORY NOTES:
(i) MOE data refers to Ministry Inspection Data.
(ii) Parameters for which either plant or MOE data were not available, are not listed.
(iii) Plant LTA results are Twelve–Month Average Concentration Results.
(iv) "N/A" – no 99th percentile value calculated
(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.

Sampling Points
CO 0100 – Final Outfall to River

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – STEPAN CANADA INC. – LONGFORD MILLS

				CONTROL POINT 0100			CONTROL POINT 0200			
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE 1	LTA	99th Per	MOE 1	MOE 2
1	COD	10.0	mg/L	37.0	66.8	26.0	150.0	636.1	78.0	190.0
2	Cyanide Total	0.005	mg/L	0.005	N/A	0.001	0.005	N/A	0.001	0.001
3	Hydrogen Ion (pH)			7.5	8.4	8.1	6.8	7.8	6.8	6.9
4	Ammonia plus Ammonium	0.25	mg/L	0.20	1.15	0.05	1.43	7.09	20.90	0.05
4	Nitrate+Nitrite	0.25	mg/L	0.17	0.68	0.05	0.54	3.12	0.10	0.05
4	Total Kjeldahl nitrogen	0.5	mg/L	1.0	3.3	0.8	4.8	22.6	23.3	1.4
5	DOC	1.0	mg/L	8.6	14.9	10.2	36.1	84.6	19.8	42.0
5	TOC	5.0	mg/L	8.3	12.9	15.0	39.0	91.1	24.0	51.0
6	Total phosphorus	0.10	mg/L	0.1	0.3	0.0	0.2	1.1	0.1	0.2
7	Specific conductance	500.0	uS/cm	421.9	674.7	538.0	3034.7	4895.2	3170.0	5770.0
8	Total suspended solids	5.0	mg/L	5.3	16.2	4.2	11.6	39.0	8.9	8.2
8	Volatile suspended solids	10.0	mg/L	1.3	N/A	3.1	9.1	32.3	6.7	5.9
9	Aluminum	30.0	ug/L	97.7	340.0	130.0	837.7	5147.3	472.0	490.0
9	Boron	50.0	ug/L	37.3	94.4	20	58.0	128.7	20	no data
9	Copper	10.0	ug/L	6.8	12.0	9.1	10.0	37.1	8.3	13.0
9	Nickel	20.0	ug/L	14.2	N/A	3.0	23.8	63.0	20.0	54.0
9	Zinc	10.0	ug/L	20.5	113.2	17.0	46.0	239.7	25.8	31.0
14	Phenolics (4AAP)	2.0	ug/L	2.5	9.1	1.2	15.6	80.8	3.8	3.8
15	Sulphide	20.0	ug/L	25.3	316.5	20	30.5	476.1	10.0	10.0
16	Carbon tetrachloride	1.3	ug/L	0.4	N/A	0.5	5.1	51.2	4.0	0.5
16	Chloroform	0.7	ug/L	1.4	5.8	2.0	7.9	38.4	4.0	1.8
25	Oil and grease	1.0	mg/L	3.6	17.1	1.0	11.0	38.8	1.0	8.0
27	PCBT	0.1	ug/L	0.1	N/A	0.0	30.0	356.0	0.0	0.0

EXPLANATORY NOTES:
(i) MOE data refers to Ministry Inspection Data.
(ii) Parameters for which either plant or MOE data were not available, are not listed.
(iii) Plant LTA results are Twelve–Month Average Concentration Results.
(iv) "N/A" – no 99th percentile value calculated
(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.

Sampling Points
CO 0100 – Effluent to Lake
PR 0200 – Clarifier Effluent flows into CO 0100

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – UNIROYAL CHEMICAL LTD. – ELMIRA

				CONTROL POINT 0600					CONTROL POINT 0800				
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE 1	MOE 2	MOE 3	LTA	99th Per	MOE 1	MOE 2	MOE 3
1	COD	10.0	mg/L	14.0	19.5	8.0	6.0	10.0	10.8	N/A	14.0	6.0	
2	Cyanide Total	0.005	mg/L	0.001	0.002	0.001	0.001	0.001	0.002	0.006	0.001	0.001	0.001
3	Hydrogen ion (pH)			8.0	8.7	8.1	8.2	8.2	8.0	8.8	8.2	8.2	
4	Ammonia plus Ammonium	0.25	mg/L	0.11	0.66	0.05	0.05	0.05	0.42	1.63	0.25	0.05	
4	Nitrate + Nitrite	0.25	mg/L	1.95	2.89	1.70	2.00	2.55	5.15	20.32	5.15	2.00	
4	Total Kjeldahl nitrogen	0.5	mg/L	0.7	4.3	0.1	0.3	0.5	1.1	3.6	0.9	0.3	
5	DOC	1.0	mg/L	5.4	27.1	1.3	1.2	2.2	7.3	30.1	2.7	1.2	
5	TOC	5.0	mg/L	5.4	N/A	3.0	2.0	3.0	6.4	19.4	6.0	2.0	
6	Total phosphorus	0.10	mg/L	0.39	3.89	0.82	0.02	0.02	0.20	0.85	0.16	0.02	
7	Specific conductance	500.0	uS/cm	798.9	1364.2	968.0	643.0	687.0	1192.7	2664.3	2030.0	643.0	
8	Total suspended solids	5.0	mg/L	3.8	14.2	3.4	3.8	3.5	12.2	59.7	6.3	3.8	
8	Volatile suspended solids	10.0	mg/L	3.5	N/A	0.8	2.0	1.7	3.5	N/A	2.0	2.0	
9	Aluminum	30.0	ug/L	9.3	N/A	30.0	190.0	400.0	140.1	516.1	250.0	190.0	
9	Boron	50.0	ug/L	40.8	74.7	59.0	2.0	50.0	36.0	71.2	110.0	2.0	
9	Copper	10.0	ug/L	5.0	10.6	46.0	23.0	16.0	5.8	19.0	7.8	23.0	
9	Zinc	10.0	ug/L	30.5	411.4	18.0	77.0	97.0	59.8	348.4	15.0	77.0	
12	Mercury	0.10	ug/L	0.24	2.22	0.03	0.03	0.02	0.05	0.36	0.01	0.03	
14	Phenolics (4AAP)	2.0	ug/L	7.4	79.1	9.4	8.8	8.8	7.3	49.0	4.4	8.8	2.2
15	Sulphide	20.0	ug/L	29.5	N/A	2.0	2.0	2.0	44.8	168.3	5.0	2.0	2.0
16	Bromodichloromethane	0.8	ug/L	0.5	N/A	0.5	0.5	0.5	0.5	N/A	0.5	0.5	0.5
16	Chloroform	0.7	ug/L	0.7	N/A	0.2	3.0	0.8	0.6	N/A	0.2	3.0	0.8
16	Methylene chloride	1.3	ug/L	2.9	N/A	0.5	4.0	0.5	0.3	N/A	0.5	4.0	0.5
17	Benzene	0.5	ug/L	0.4	N/A	0.2	0.2	1.0	0.4	N/A	0.2	0.2	0.4
17	Toluene	0.5	ug/L	4.7	19.9	0.2	20.0	15.0	10.4	430.0	0.2	20.0	0.2
19	Bis(2-ethylhexyl) phthalate	2.2	ug/L	19.0	N/A	5.0	290.0	13.0	2.0	N/A	5.0	290.0	1.0
25	Oil and grease	1.0	mg/L	1.2	N/A	3.1	2.0	1.0	1.6	6.8		2.0	1.0

OCM SECTOR TWELVE MONTH REPORT

PARAMETERS FOUND AT EACH SAMPLING POINT
PLANT – MINISTRY MONITORING COMPARISON
PLANT SITE – UNIROYAL CHEMICAL LTD. – ELMIRA

				CONTROL POINT 0900					CONTROL POINT 1100		
ATG	PARAMETER	RMDL	UNIT	LTA	99th Per	MOE 1	MOE 2	MOE 3	LTA	99th Per	MOE 1
1	COD	10.0	mg/L	23.8	N/A		14.0	4.0			40.0
2	Cyanide Total	0.005	mg/L	0.002	0.004		0.001	0.001	0.003	0.014	0.001
3	Hydrogen ion (pH)			8.3	9.2		8.6	8.3	7.9	8.6	8.2
4	Ammonia plus Ammonium	0.25	mg/L	0.19	0.38		0.05	0.05	2.56	25.92	2.60
4	Nitrate + Nitrite	0.25	mg/L	1.69	5.87		3.85	3.30	5.46	48.34	3.85
4	Total Kjeldahl nitrogen	0.5	mg/L	0.8	3.9		0.4	0.2	2.8	17.1	3.7
5	DOC	1.0	mg/L	6.1	28.0		1.6	1.0	10.0	34.8	5.0
5	TOC	5.0	mg/L	7.0	26.2		4.0		8.7	14.5	10.0
6	Total phosphorus	0.10	mg/L	0.16	0.81		0.30	0.04	0.49	3.43	0.74
7	Specific conductance	500.0	uS/cm	1109.1	2167.5		1830.0	867.0	1780.3	6228.5	3060.0
8	Total suspended solids	5.0	mg/L	11.1	58.8		11.9		25.8	117.6	6.4
8	Volatile suspended solids	10.0	mg/L	3.5	N/A		4.1				4.6
9	Aluminum	30.0	ug/L	160.5	1064.8		200.0		41.7	257.6	67.0
9	Boron	50.0	ug/L	35.8	60.3		2.0		69.5	463.2	92.0
9	Copper	10.0	ug/L	11.0	57.0		17.0		10.2	47.3	16.0
9	Zinc	10.0	ug/L	38.7	260.3		22.0		17.8	39.2	27.0
12	Mercury	0.10	ug/L	0.08	0.95		0.03		0.04	0.08	0.02
14	Phenolics (4AAP)	2.0	ug/L	9.3	55.2		4.8	0.8	4.2	24.0	10.6
15	Sulphide	20.0	ug/L	37.3	50.0	2.0	3.0	2.0	60.0	N/A	10.0
16	Bromodichloromethane	0.8	ug/L	0.4	N/A	0.5	0.5	1.0	0.4	N/A	0.5
16	Chloroform	0.7	ug/L	1.2	N/A	0.2	2.0	1.2	0.4	N/A	0.5
16	Methylene chloride	1.3	ug/L	0.4	N/A	0.5	4.0	0.5	0.3	N/A	1.0
17	Benzene	0.5	ug/L	0.4	N/A	0.2	0.2	0.2	0.2	N/A	0.2
17	Toluene	0.5	ug/L	229.1	5569.5	0.2	5.0	1.0	0.4	N/A	0.2
19	Bis(2-ethylhexyl) phthalate	2.2	ug/L	5.1	N/A		1.0	1.0			
25	Oil and grease	1.0	mg/L	2.8	67.0		1.0		11.2	120.0	1.0

EXPLANATORY NOTES:
(i) MOE data refers to Ministry Inspection Data.
(ii) Parameters for which either plant or MOE data were not available, are not listed.
(iii) Plant LTA results are Twelve-Month Average Concentration Results.
(iv) "N/A" – no 99th percentile value calculated
(v) 99th Per = 99th Percentile – a statistically determined value for a set of data such that 99% of the data values, will fall below the 99th Percentile value.
(vi) Blank – no MOE data and/or no monitoring data available

Sampling Points
CO 0600 – Outfall #6 to River
CO 0800 – Shirt Factory Creek from Site
CO 0900 – Outfall #11 to River
CO 1100 – Shirt Factory Creek to Site

APPENDIX I

PLANT-MINISTRY PCDD/PCDF DATA COMPARISON TABLES

	PAGE
AMOCO	I-2
B.F. GOODRICH	I-2
CELANESE	I-2
CHINOOK	I-4
CORNWALL CHEMICAL	I-4
COURTAULDS	I-4
DOW CHEMICAL	I-6
DUPONT (CORUNNA)	I-9
DUPONT (KINGSTON)	I-10
DUPONT (MAITLAND)	I-11
DUPONT (WHITBY)	I-12
ESSO CHEMICAL	I-13
ETHYL	I-13
G.E. PLASTICS	I-14
GUARDSMAN	I-15
MORBERN	I-15
NOVACOR	I-15
POLYSAR	I-16
ROHM&HAAS (MORRISBURG)	I-18
STEPAN	I-19
UNIROYAL	I-20

OCM SECTOR TWELVE MONTH REPORT

DIOXIN AND FURAN RESULTS (ATG 24)
All results in pg/L

▒ – Shading indicates a Found parameter
N – Total number of results
D – Number of results greater than the RMDL

CONTROL POINT\ PARAMETER	PLANT MONITORING DATA									MINISTRY INSPECTION DATA					
	RMDL	N	D	MIN		MAX		AVG		RESULT1		RESULT2		RESULT3	
Amoco Canada Resources Ltd. – Sarnia CO 0100															
2,3,7,8 T4CDD	20	4	0	<	11	<	20	<	13						
Total T4CDD	20	4	0	<	11	<	20	<	13	<	4				
Total P5CDD	20	4	0	<	19	<	20	<	19	<	7				
Total H6CDD	30	4	0	<	20	<	22	<	22	<	20				
Total H7CDD	30	4	0	<	17	<	30	<	22	<	20				
Total O8CDD	30	4	0	<	20	<	30	<	24	<	10				
Total T4CDF	15	4	0	<	8	<	10	<	8	<	4				
Total P5CDF	15	4	0	<	13	<	15	<	14	<	3				
Total H6CDF	20	4	0	<	15	<	20	<	16	<	10				
Total H7CDF	30	4	0	<	20	<	25	<	21	<	20				
Total O8CDF	30	4	0	<	22	<	30	<	24	<	10				
B.F. Goodrich Canada Inc. – Thorold PR 0100															
2,3,7,8 T4CDD	20	4	0	<	20	<	20	<	20	<	50	<	1		
Total T4CDD	20	4	1	<	20	<	50	<	28	<	50	<	1		
Total P5CDD	20	4	1	<	20	<	300	<	90	<	40	<	2		
Total H6CDD	30	4	1	<	30	<	300	<	98	<	80	<	5		
Total H7CDD	30	4	1	<	30	<	300	<	98	<	70		20		
▒ Total O8CDD	30	4	4	<	48		510	<	228		150		130		
Total T4CDF	15	4	1	<	15	<	50	<	24	<	40		10		
Total P5CDF	15	4	1	<	15	<	300	<	86	<	40	<	2		
Total H6CDF	20	4	1	<	20	<	300	<	90	<	50	<	3		
Total H7CDF	30	4	1	<	30	<	300	<	98	<	60	<	4		
Total O8CDF	30	4	1	<	30	<	100	<	48	<	30	<	2		
B.F. Goodrich Canada Inc. – Thorold IN 0600															
2,3,7,8 T4CDD	20	4	0	<	20	<	20	<	20						
Total T4CDD	20	4	1	<	20	<	50	<	28						
Total P5CDD	20	4	1	<	20	<	300	<	90						
Total H6CDD	30	4	1	<	30	<	300	<	98						
Total H7CDD	30	4	1	<	30	<	300	<	98						
▒ Total O8CDD	30	4	3	<	30		400	<	163						
Total T4CDF	15	4	1	<	15	<	50	<	24						
Total P5CDF	15	4	1	<	15	<	300	<	86						
Total H6CDF	20	4	1	<	20	<	300	<	90						
Total H7CDF	30	4	1	<	30	<	300	<	98						
Total O8CDF	30	4	1	<	30	<	100	<	48						
Celanese Canada Inc. – Millhaven CO 0100															
2,3,7,8 T4CDD	20	3	0	<	11	<	11	<	11	<	20				
Total T4CDD	20	4	0	<	11	<	11	<	11	<	20				
Total P5CDD	20	4	0	<	19	<	19	<	19	<	40				
Total H6CDD	30	4	0	<	22	<	22	<	22	<	80				
Total H7CDD	30	4	0	<	17	<	20	<	18	<	50				
Total O8CDD	30	4	0	<	20	<	20	<	20	<	20				
Total T4CDF	15	4	0	<	8	<	10	<	8	<	20				
Total P5CDF	15	4	0	<	13	<	13	<	13	<	20				
Total H6CDF	20	4	0	<	15	<	20	<	16	<	40				
Total H7CDF	30	4	0	<	20	<	20	<	20	<	70				
Total O8CDF	30	4	0	<	22	<	22	<	22	<	20				

OCM SECTOR TWELVE MONTH REPORT

DIOXIN AND FURAN RESULTS (ATG 24)
All results in pg/L

– Shading indicates a Found parameter
N – Total number of results
D – Number of results greater than the RMDL

CONTROL POINT\ PARAMETER	PLANT MONITORING DATA									MINISTRY INSPECTION DATA		
	RMDL	N	D	MIN		MAX		AVG		RESULT1	RESULT2	RESULT3
Celanese Canada Inc. – Millhaven CO 0200												
2,3,7,8 T4CDD	20	3	0	<	11	<	11	<	11	< 20		
Total T4CDD	20	4	0	<	11	<	11	<	11	< 30		
Total P5CDD	20	4	0	<	19	<	19	<	19	< 40		
Total H6CDD	30	4	0	<	22	<	22	<	22	< 60		
Total H7CDD	30	4	0	<	17	<	21	<	18	< 50		
Total O8CDD	30	4	0	<	20	<	21	<	20	< 20		
Total T4CDF	15	4	0	<	8	<	11	<	8	< 10		
Total P5CDF	15	4	0	<	13	<	13	<	13	< 20		
Total H6CDF	20	4	1	<	15	<	21	<	17	< 40		
Total H7CDF	30	4	0	<	20	<	21	<	20	< 70		
Total O8CDF	30	4	0	<	22	<	22	<	22	< 20		
Celanese Canada Inc. – Millhaven CO 0300												
2,3,7,8 T4CDD	20	3	0	<	11	<	11	<	11	< 30		
Total T4CDD	20	4	0	<	11	<	11	<	11	< 30		
Total P5CDD	20	4	0	<	19	<	19	<	19	< 30		
Total H6CDD	30	4	0	<	22	<	22	<	22	< 60		
Total H7CDD	30	4	0	<	17	<	21	<	18	< 40		
Total O8CDD	30	4	0	<	20	<	21	<	20	< 30		
Total T4CDF	15	4	0	<	8	<	11	<	8	< 20		
Total P5CDF	15	4	0	<	13	<	13	<	13	< 30		
Total H6CDF	20	4	1	<	15	<	21	<	17	< 40		
Total H7CDF	30	4	0	<	20	<	21	<	20	< 70		
Total O8CDF	30	4	0	<	22	<	22	<	22	19		
Celanese Canada Inc. – Millhaven PR 0400												
2,3,7,8 T4CDD	20	1	0	<	11	<	11	<	11	< 20		
Total T4CDD	20	2	0	<	11	<	11	<	11	< 30		
Total P5CDD	20	2	0	<	19	<	11	<	15	< 30		
Total H6CDD	30	2	0	<	22	<	23	<	22	< 40		
Total H7CDD	30	2	0	<	17	<	23	<	20	< 40		
Total O8CDD	30	2	1	<	23		69	<	46	< 30		
Total T4CDF	15	2	0	<	8	<	11	<	9	< 20		
Total P5CDF	15	2	0	<	11	<	13	<	12	< 20		
Total H6CDF	20	2	1	<	15	<	23	<	19	< 40		
Total H7CDF	30	2	0	<	20	<	23	<	21	< 40		
Total O8CDF	30	2	0	<	22	<	23	<	22	< 20		
Celanese Canada Inc. – Millhaven IN 0900												
2,3,7,8 T4CDD	20	1	0	<	11	<	11	<	11			
Total T4CDD	20	1	0	<	19	<	19	<	19			
Total P5CDD	30	1	0	<	23	<	23	<	23			
Total H6CDD	30	1	0	<	23	<	23	<	23			
Total H7CDD	30	1	0	<	23	<	23	<	23			
Total O8CDD	15	1	0	<	11	<	11	<	11			
Total T4CDF	15	1	0	<	13	<	13	<	13			
Total P5CDF	20	1	1	<	23	<	23	<	23			
Total H6CDF	30	1	0	<	23	<	23	<	23			
Total H7CDF	30	1	0	<	23	<	23	<	23			

OCM SECTOR TWELVE MONTH REPORT

DIOXIN AND FURAN RESULTS (ATG 24)
All results in pg/L

☐ – Shading indicates a Found parameter
N – Total number of results
D – Number of results greater than the RMDL

CONTROL POINT\ PARAMETER	PLANT MONITORING DATA									MINISTRY INSPECTION DATA		
	RMDL	N	D	MIN	MAX	AVG	RESULT1	RESULT2	RESULT3
Total O8CDF									
Chinook Group Ltd. – Sombra CO 0100									
2,3,7,8 T4CDD	20	2	0	< 20	< 20	< 20			
Total T4CDD	20	2	1	< 20	< 80	< 50	< 6		
Total P5CDD	20	2	1	< 20	100	< 60	< 5		
Total H6CDD	30	2	1	< 20	61	< 41	< 20		
Total H7CDD	30	2	0	< 25	< 25	< 25	< 10		
Total O8CDD	30	2	1	< 30	77	< 54	< 3		
Total T4CDF	15	2	0	< 10	< 10	< 10	< 7		
Total P5CDF	15	2	0	< 15	< 15	< 15	< 4		
Total H6CDF	20	2	0	< 20	< 20	< 20	< 10		
Total H7CDF	30	2	0	< 25	< 25	< 25	< 10		
Total O8CDF	30	2	0	< 30	< 30	< 30	< 2		
Chinook Group Ltd. – Sombra IN 0400									
2,3,7,8 T4CDD	20	1	0	< 20	< 20	< 20			
Total T4CDD	20	1	0	< 20	< 20	< 20			
Total P5CDD	20	1	0	< 20	< 20	< 20			
Total H6CDD	30	1	0	< 20	< 20	< 20			
Total H7CDD	30	1	0	< 25	< 25	< 25			
Total O8CDD	30	1	0	< 30	< 30	< 30			
Total T4CDF	15	1	0	< 10	< 10	< 10			
Total P5CDF	15	1	0	< 15	< 15	< 15			
Total H6CDF	20	1	0	< 20	< 20	< 20			
Total H7CDF	30	1	0	< 25	< 25	< 25			
Total O8CDF	30	1	0	< 30	< 30	< 30			
Cornwall Chemicals Ltd. – Cornwall PR 0100									
2,3,7,8 T4CDD	20	2	0	< 11	< 11	< 11	< 10		
Total T4CDD	20	2	0	< 11	< 11	< 11	< 10		
Total P5CDD	20	2	0	< 19	< 19	< 19	< 20		
Total H6CDD	30	2	0	< 17	< 22	< 20	< 30		
Total H7CDD	30	2	1	< 17	88	53	< 40		
Total O8CDD	30	2	1	< 20	160	90	470		
Total T4CDF	15	2	0	< 11	< 11	< 11	< 9		
Total P5CDF	15	2	0	< 13	< 13	< 13	< 20		
Total H6CDF	20	2	0	< 15	< 17	< 16	< 20		
Total H7CDF	30	2	1	< 20	42	31	< 70		
Total O8CDF	30	2	0	< 22	< 29	< 26	55		
Courtaulds Fibres Canada – Cornwall PR 0100									
2,3,7,8 T4CDD	20	4	0	< 11	< 11	< 11	< 20		
Total T4CDD	20	4	0	< 11	< 11	< 11	< 20	< 3	
Total P5CDD	20	4	0	< 19	< 19	< 19	< 50	< 8	
Total H6CDD	30	4	0	< 22	< 22	< 22	< 40	< 10	
Total H7CDD	30	4	0	< 17	< 17	< 17	< 100	< 10	
Total O8CDD	30	4	0	< 20	< 24	< 21	< 50	< 7	
Total T4CDF	15	4	0	< 8	< 8	< 8	< 20	< 2	
Total P5CDF	15	4	0	< 13	< 13	< 13	< 20	< 3	
Total H6CDF	20	4	0	< 15	< 15	< 15	< 50	< 5	
Total H7CDF	30	4	0	< 20	< 20	< 20	< 100	< 10	
Total O8CDF	30	4	0	< 22	< 22	< 22	< 40	< 8	

OCM SECTOR TWELVE MONTH REPORT

DIOXIN AND FURAN RESULTS (ATG 24)
All results in pg/L

▒ – Shading indicates a Found parameter
N – Total number of results
D – Number of results greater than the RMDL

CONTROL POINT\ PARAMETER	PLANT MONITORING DATA									MINISTRY INSPECTION DATA		
	RMDL	N	D	MIN		MAX		AVG		RESULT1	RESULT2	RESULT3
Courtaulds Fibres Canada – Cornwall PR 0300												
2,3,7,8 T4CDD	20	4	0	<	11	<	11	<	11	< 40		
Total T4CDD	20	4	0	<	11	<	11	<	11	< 40	< 2	
Total P5CDD	20	4	0	<	19	<	19	<	19	< 60	< 6	
Total H6CDD	30	4	0	<	22	<	22	<	22	< 100	< 7	
Total H7CDD	30	4	0	<	17	<	17	<	17	< 100	< 5	
Total O8CDD	30	4	0	<	20	<	22	<	21	< 60	< 5	
Total T4CDF	15	4	0	<	8	<	8	<	8	< 30	< 1	
Total P5CDF	15	4	0	<	13	<	13	<	13	< 40	< 2	
Total H6CDF	20	4	0	<	15	<	15	<	15	< 70	< 5	
Total H7CDF	30	4	0	<	20	<	20	<	20	< 100	< 5	
Total O8CDF	30	4	0	<	22	<	22	<	22	< 60	< 3	
Courtaulds Fibres Canada – Cornwall CO 0500												
2,3,7,8 T4CDD	20	4	0	<	11	<	11	<	11			
Total T4CDD	20	4	0	<	11	<	11	<	11	< 3		
Total P5CDD	20	4	0	<	19	<	19	<	19	< 6		
Total H6CDD	30	4	0	<	22	<	22	<	22	< 10		
Total H7CDD	30	4	0	<	17	<	20	<	18	< 10		
Total O8CDD	30	4	0	<	20	<	24	<	21	< 10		
Total T4CDF	15	4	0	<	8	<	8	<	8	< 3		
Total P5CDF	15	4	0	<	13	<	13	<	13	< 4		
Total H6CDF	20	4	0	<	15	<	15	<	15	< 7		
Total H7CDF	30	4	0	<	20	<	20	<	20	< 10		
Total O8CDF	30	4	1	<	22		51	<	29	< 8		
Courtaulds Fibres Canada – Cornwall CO 0600												
2,3,7,8 T4CDD	20	4	0	<	11	<	11	<	11	< 100		
Total T4CDD	20	4	0	<	11	<	11	<	11	< 100	< 3	
Total P5CDD	20	4	0	<	19	<	19	<	19	< 100	< 5	
Total H6CDD	30	4	0	<	22	<	22	<	22	< 100	< 10	
Total H7CDD	30	4	0	<	17	<	17	<	17	< 100	< 10	
Total O8CDD	30	4	0	<	20	<	20	<	20	< 80	< 9	
Total T4CDF	15	4	0	<	8	<	8	<	8	< 70	< 10	
Total P5CDF	15	4	0	<	13	<	13	<	13	< 80	< 5	
Total H6CDF	20	4	0	<	15	<	15	<	15	< 90	< 9	
Total H7CDF	30	4	0	<	20	<	20	<	20	< 100	< 10	
Total O8CDF	30	4	0	<	22	<	22	<	22	< 70	< 6	
Courtaulds Fibres Canada – Cornwall CO 0700												
2,3,7,8 T4CDD	20	4	0	<	11	<	11	<	11	< 40		
Total T4CDD	20	4	0	<	11	<	11	<	11	< 40	< 2	
Total P5CDD	20	4	0	<	19	<	19	<	19	< 50	< 4	
Total H6CDD	30	4	0	<	22	<	22	<	22	< 60	< 6	
Total H7CDD	30	4	0	<	17	<	17	<	17	< 60	< 4	
Total O8CDD	30	4	1	<	20	<	32	<	23	< 40	< 4	
Total T4CDF	15	4	0	<	8	<	8	<	8	< 40	< 1	
Total P5CDF	15	4	0	<	13	<	13	<	13	< 30	< 2	
Total H6CDF	20	4	0	<	15	<	15	<	15	< 40	< 4	
Total H7CDF	30	4	0	<	20	<	20	<	20	< 80	< 6	
Total O8CDF	30	4	0	<	22	<	29	<	24	< 30	< 3	

OCM SECTOR TWELVE MONTH REPORT

DIOXIN AND FURAN RESULTS (ATG 24)
All results in pg/L

▒ – Shading indicates a Found parameter
N – Total number of results
D – Number of results greater than the RMDL

CONTROL POINT\ PARAMETER	PLANT MONITORING DATA									MINISTRY INSPECTION DATA		
	RMDL	N	D	MIN		MAX		AVG		RESULT1	RESULT2	RESULT3
Courtaulds Fibres Canada – Cornwall CO 0800												
2,3,7,8 T4CDD	20	4	0	<	11	< 11		< 11		< 30		
Total T4CDD	20	4	0	<	11	< 11		< 11		< 30	9	
Total P5CDD	20	4	0	<	19	< 19		< 19		< 40	< 5	
Total H6CDD	30	4	0	<	22	< 22		< 22		< 60	< 8	
Total H7CDD	30	4	0	<	17	< 17		< 17		< 70	< 8	
Total O8CDD	30	4	0	<	20	< 20		< 20		< 30	< 7	
Total T4CDF	15	4	0	<	8	< 8		< 8		< 20	< 2	
Total P5CDF	15	4	0	<	13	< 13		< 13		< 30	< 3	
Total H6CDF	20	4	0	<	15	< 15		< 15		< 30	< 5	
Total H7CDF	30	4	0	<	20	< 20		< 20		< 80	< 10	
Total O8CDF	30	4	0	<	22	< 22		< 22		< 30	< 5	
Courtaulds Fibres Canada – Cornwall IN 1300												
2,3,7,8 T4CDD	20	5	0	<	2	< 11		< 9				
Total T4CDD	20	5	0	<	2	< 11		< 9				
Total P5CDD	20	5	0	<	2	< 19		< 16				
Total H6CDD	30	5	0	<	3	< 22		< 18				
Total H7CDD	30	5	0	<	3	< 17		< 14				
Total O8CDD	30	5	0	<	3	< 20		< 17				
Total T4CDF	15	5	0	<	2	< 8		< 6				
Total P5CDF	15	5	0	<	2	< 13		< 11				
Total H6CDF	20	5	0	<	2	< 15		< 12				
Total H7CDF	30	5	0	<	3	< 20		< 17				
Total O8CDF	30	5	0	<	3	< 22		< 18				
Dow Chemical Canada Inc. – Sarnia IN 0100												
2,3,7,8 T4CDD	20	2	0	<	3	< 3		< 3				
Total T4CDD	20	2	0	<	3	< 3		< 3				
Total P5CDD	20	2	0	<	10	< 10		< 10				
Total H6CDD	30	2	0	<	3	< 3		< 3				
Total H7CDD	30	2	0	<	13	< 13		< 13				
Total O8CDD	30	2	0	<	22	< 22		< 22				
Total T4CDF	15	2	0	<	3	< 3		< 3				
Total P5CDF	15	2	0	<	6	< 6		< 6				
Total H6CDF	20	2	0	<	7	< 7		< 7				
Total H7CDF	30	2	0	<	11	< 11		< 11				
Total O8CDF	30	2	0	<	28	< 28		< 28				
Dow Chemical Canada Inc. – Sarnia CO 0200												
2,3,7,8 T4CDD	20	3	0	<	3	< 3		< 3		< 7		
Total T4CDD	20	3	0	<	3	< 3		< 3		< 7		
Total P5CDD	20	3	0	<	10	< 10		< 10		< 10		
Total H6CDD	30	3	0	<	3	< 3		< 3		< 20		
Total H7CDD	30	3	0	<	13	< 13		< 13		< 10		
Total O8CDD	30	3	1	<	22	100		< 48		< 10		
Total T4CDF	15	3	0	<	3	< 3		< 3		< 10		
Total P5CDF	15	3	0	<	6	< 6		< 6		< 6		
Total H6CDF	20	3	0	<	7	< 7		< 7		< 20		
Total H7CDF	30	3	0	<	11	< 11		< 11		< 20		
Total O8CDF	30	3	0	<	28	< 28		< 28		< 9		

OCM SECTOR TWELVE MONTH REPORT

DIOXIN AND FURAN RESULTS (ATG 24)
All results in pg/L

[ ] – Shading indicates a Found parameter
N – Total number of results
D – Number of results greater than the RMDL

CONTROL POINT\	PLANT MONITORING DATA						MINISTRY INSPECTION DATA		
PARAMETER	RMDL	N	D	MIN	MAX	AVG	RESULT1	RESULT2	RESULT3
Dow Chemical Canada Inc. – Sarnia CO 0500									
2,3,7,8 T4CDD	20	2	0	< 3	< 3	< 3	< 20		
Total T4CDD	20	2	0	< 3	< 3	< 3	< 20		
Total P5CDD	20	2	0	< 10	< 10	< 10	< 10		
Total H6CDD	30	2	0	< 3	< 3	< 3	< 10		
Total H7CDD	30	2	1	< 13	79	< 46	< 10		
Total O8CDD	30	2	1	< 29	166	< 97	< 10		
Total T4CDF	15	2	1	< 3	135	< 69	< 20		
Total P5CDF	15	2	1	< 6	467	< 236	< 7		
Total H6CDF	20	2	1	< 7	792	< 400	< 10		
Total H7CDF	30	2	1	< 11	492	< 251	58		
Total O8CDF	30	2	2	105	311	208	180		
Dow Chemical Canada Inc. – Sarnia CO 0600									
2,3,7,8 T4CDD	20	2	0	< 3	< 3	< 3	< 20		
Total T4CDD	20	2	0	< 3	< 3	< 3	< 20		
Total P5CDD	20	2	0	< 10	< 10	< 10	< 20		
Total H6CDD	30	2	0	< 3	< 3	< 3	< 20		
Total H7CDD	30	2	0	< 13	< 13	< 13	< 20		
Total O8CDD	30	2	1	< 22	222	< 122	< 10		
Total T4CDF	15	2	0	< 3	< 3	< 3	< 8		
Total P5CDF	15	2	0	< 6	< 6	< 6	< 10		
Total H6CDF	20	2	0	< 7	< 7	< 7	< 20		
Total H7CDF	30	2	0	< 11	< 11	< 11	< 20		
Total O8CDF	30	2	0	< 28	< 28	< 28	< 20		
Dow Chemical Canada Inc. – Sarnia CO 0700									
2,3,7,8 T4CDD	20	2	0	< 3	< 3	< 3	< 10		
Total T4CDD	20	2	0	< 3	< 3	< 3	< 10		
Total P5CDD	20	2	0	< 10	< 10	< 10	< 20		
Total H6CDD	30	2	0	< 3	< 3	< 3	< 20		
Total H7CDD	30	2	0	< 13	< 13	< 13	< 20		
Total O8CDD	30	2	0	< 22	< 22	< 22	< 10		
Total T4CDF	15	2	0	< 3	< 3	< 3	< 10		
Total P5CDF	15	2	0	< 6	< 6	< 6	< 10		
Total H6CDF	20	2	0	< 7	< 7	< 7	< 10		
Total H7CDF	30	2	0	< 11	< 11	< 11	< 20		
Total O8CDF	30	2	0	< 28	< 28	< 28	< 10		
Dow Chemical Canada Inc. – Sarnia CO 0900									
2,3,7,8 T4CDD	20	2	0	< 3	< 3	< 3	< 10		
Total T4CDD	20	2	0	< 3	< 3	< 3	< 10		
Total P5CDD	20	2	0	< 10	< 10	< 10	< 20		
Total H6CDD	30	2	0	< 3	< 3	< 3	< 20		
Total H7CDD	30	2	0	< 13	< 13	< 13	< 20		
Total O8CDD	30	2	0	< 22	< 22	< 22	< 20		
Total T4CDF	15	2	0	< 3	< 3	< 3	< 10		
Total P5CDF	15	2	0	< 6	< 6	< 6	< 10		
Total H6CDF	20	2	0	< 7	< 7	< 7	< 20		
Total H7CDF	30	2	0	< 11	< 11	< 11	< 20		
Total O8CDF	30	2	0	< 28	< 28	< 28	< 10		

OCM SECTOR TWELVE MONTH REPORT

DIOXIN AND FURAN RESULTS (ATG 24)
All results in pg/L

▒ – Shading indicates a Found parameter
N – Total number of results
D – Number of results greater than the RMDL

CONTROL POINT\	PLANT MONITORING DATA						MINISTRY INSPECTION DATA		
PARAMETER	RMDL	N	D	MIN	MAX	AVG	RESULT1	RESULT2	RESULT3
Dow Chemical Canada Inc. – Sarnia PR 1200									
2,3,7,8 T4CDD	20	12	0	< 3	< 16	< 4			
Total T4CDD	20	12	3	< 3	323	< 42	< 3		
Total P5CDD	20	12	5	< 10	292	< 54	< 5		
Total H6CDD	30	12	5	< 3	903	< 185	19		
Total H7CDD	30	12	11	< 13	2217	< 565	92		
Total O8CDD	30	12	12	31	3653	871	170		
Total T4CDF	15	12	11	< 9	4939	956	89		
Total P5CDF	15	12	11	< 6	11605	< 2445	210		
Total H6CDF	20	12	11	< 7	22583	< 5626	600		
Total H7CDF	30	12	11	< 15	33306	< 9517	2200		
Total O8CDF	30	12	11	< 28	40392	< 13251	3700		
Dow Chemical Canada Inc. – Sarnia PR 1600									
2,3,7,8 T4CDD	20	3	0	< 3	< 3	< 3	< 40		
Total T4CDD	20	3	0	< 3	< 3	< 3	< 40		
Total P5CDD	20	3	0	< 10	< 10	< 10	< 20		
Total H6CDD	30	3	0	< 3	< 3	< 3	< 40		
Total H7CDD	30	3	0	< 13	< 13	< 13	< 30		
Total O8CDD	30	3	2	< 22	72	< 50	< 40		
Total T4CDF	15	3	3	186	2609	1078	< 30		
Total P5CDF	15	3	0	< 6	< 6	< 6	< 10		
Total H6CDF	20	3	0	< 7	< 7	< 7	< 30		
Total H7CDF	30	3	2	< 11	133	< 60	< 20		
Total O8CDF	30	3	3	365	711	568	670		
Dow Chemical Canada Inc. – Sarnia PR 1700									
2,3,7,8 T4CDD	20	3	0	< 3	< 3	< 3	< 10		
Total T4CDD	20	3	0	< 3	< 13	< 6	< 10		
Total P5CDD	20	3	0	< 10	< 10	< 10	< 20		
Total H6CDD	30	3	0	< 3	< 17	< 8	< 20		
Total H7CDD	30	3	0	< 13	< 13	< 13	< 20		
Total O8CDD	30	3	3	58	509	226	< 20		
Total T4CDF	15	3	3	42	193	93	< 10		
Total P5CDF	15	3	3	< 16	1160	< 408	< 10		
Total H6CDF	20	3	3	58	2614	942	< 20		
Total H7CDF	30	3	3	178	5202	1869	< 20		
Total O8CDF	30	3	3	214	15844	5701	310		
Dow Chemical Canada Inc. – Sarnia PR 1900									
2,3,7,8 T4CDD	20	12	0	< 3	3	< 3	< 20		
Total T4CDD	20	12	0	< 3	< 6	< 3	< 20		
Total P5CDD	20	12	0	< 10	< 10	< 10	< 20		
Total H6CDD	30	12	0	< 3	< 6	< 3	< 30		
Total H7CDD	30	12	0	< 13	< 13	< 13	< 20		
Total O8CDD	30	12	9	< 22	153	< 64	< 20		
Total T4CDF	15	12	9	< 3	470	< 105	< 20		
Total P5CDF	15	12	4	< 6	43	< 15	< 10		
Total H6CDF	20	12	5	< 7	135	< 35	< 20		
Total H7CDF	30	12	5	< 11	193	< 56	< 30		
Total O8CDF	30	12	6	< 28	378	< 141	< 20		

OCM SECTOR TWELVE MONTH REPORT

DIOXIN AND FURAN RESULTS (ATG 24)
All results in pg/L

- ▒ – Shading indicates a Found parameter
- N – Total number of results
- D – Number of results greater than the RMDL

CONTROL POINT\ PARAMETER	PLANT MONITORING DATA						MINISTRY INSPECTION DATA		
	RMDL	N	D	MIN	MAX	AVG	RESULT1	RESULT2	RESULT3
Dow Chemical Canada Inc. – Sarnia PR 2000									
2,3,7,8 T4CDD	20	2	0	< 3	< 3	< 3	< 20		
Total T4CDD	20	2	0	< 3	< 3	< 3	< 20		
Total P5CDD	20	2	0	< 10	< 10	< 10	< 20		
Total H6CDD	30	2	0	< 3	< 3	< 3	< 30		
Total H7CDD	30	2	0	< 13	< 13	< 13	< 20		
Total O8CDD	30	2	1	< 22	46	< 34	< 40		
Total T4CDF	15	2	0	< 3	< 4	< 4	< 10		
Total P5CDF	15	2	0	< 6	< 6	< 6	< 10		
Total H6CDF	20	2	0	< 7	< 7	< 7	< 20		
Total H7CDF	30	2	1	< 11	85	< 48	< 20		
Total O8CDF	30	2	1	< 28	496	< 262	280		
Dow Chemical Canada Inc. – Sarnia PR 2100									
2,3,7,8 T4CDD	20	4	0	< 3	< 3	< 3	< 20		
Total T4CDD	20	4	0	< 3	< 3	< 3	< 20		
Total P5CDD	20	4	0	< 10	< 10	< 10	< 20		
Total H6CDD	30	4	0	< 3	< 3	< 3	< 40		
Total H7CDD	30	4	0	< 13	< 13	< 13	< 20		
Total O8CDD	30	4	2	< 22	95	< 46	< 30		
Total T4CDF	15	4	0	< 3	< 3	< 3	< 20		
Total P5CDF	15	4	0	< 6	< 6	< 6	< 10		
Total H6CDF	20	4	0	< 7	< 7	< 7	< 20		
Total H7CDF	30	4	1	< 11	132	< 41	< 20		
Total O8CDF	30	4	3	< 28	1957	< 606	1200		
Du Pont Canada Inc. – Corunna IN 0100									
2,3,7,8 T4CDD	20	1	0	< 11	< 11	< 11			
Total T4CDD	20	2	0	< 11	< 11	< 11			
Total P5CDD	20	2	0	< 19	< 19	< 19			
Total H6CDD	30	2	0	< 22	< 22	< 22			
Total H7CDD	30	2	0	< 17	< 17	< 17			
Total O8CDD	30	2	0	< 20	< 20	< 20			
Total T4CDF	15	2	0	< 8	< 8	< 8			
Total P5CDF	15	2	0	< 13	< 13	< 13			
Total H6CDF	20	2	0	< 15	< 15	< 15			
Total H7CDF	30	2	0	< 20	< 20	< 20			
Total O8CDF	30	2	0	< 22	< 22	< 22			
Du Pont Canada Inc. – Corunna CO 0200									
2,3,7,8 T4CDD	20	2	0	< 11	< 11	< 11	< 8	< 3	
Total T4CDD	20	2	0	< 11	< 11	< 11	< 8	< 3	
Total P5CDD	20	2	0	< 19	< 19	< 19	< 20	< 6	
Total H6CDD	30	2	0	< 22	< 22	< 22	< 20	< 6	
Total H7CDD	30	2	1	< 17	38	< 28	< 20	< 5	
Total O8CDD	30	2	1	< 20	31	< 26	< 10	< 7	
Total T4CDF	15	2	0	< 8	< 8	< 8	< 8	< 3	
Total P5CDF	15	2	0	< 13	< 13	< 13	< 7	< 3	
Total H6CDF	20	2	0	< 15	< 15	< 15	< 20	< 4	
Total H7CDF	30	2	0	< 20	< 20	< 20	< 20	< 9	
Total O8CDF	30	2	0	< 22	< 22	< 22	< 10	< 5	

OCM SECTOR TWELVE MONTH REPORT

DIOXIN AND FURAN RESULTS (ATG 24)
All results in pg/L

▒ – Shading indicates a Found parameter
N – Total number of results
D – Number of results greater than the RMDL

CONTROL POINT\ PARAMETER	PLANT MONITORING DATA									MINISTRY INSPECTION DATA								
	RMDL	N	D	MIN			MAX			AVG			RESULT1			RESULT2			RESULT3		
Du Pont Canada Inc. – Corunna CO 0400																					
2,3,7,8 T4CDD	20	2	0	<	11	<	11	<	11				<	10		<	3				
Total T4CDD	20	2	0	<	11	<	11	<	11					15		<	3				
Total P5CDD	20	2	0	<	19	<	19	<	19				<	10		<	6				
Total H6CDD	30	2	0	<	22	<	22	<	22				<	20		<	6				
Total H7CDD	30	2	1	<	17		87	<	52				<	20		<	5				
Total O8CDD	30	2	1	<	20		98	<	59				<	10		<	7				
Total T4CDF	15	2	0	<	8	<	8	<	8				<	5		<	3				
Total P5CDF	15	2	0	<	13	<	13	<	13				<	9		<	3				
Total H6CDF	20	2	0	<	15	<	15	<	15				<	10		<	4				
Total H7CDF	30	2	0	<	20	<	20	<	20				<	20		<	9				
Total O8CDF	30	2	0	<	22	<	22	<	22				<	10		<	5				
Du Pont Canada Inc. – Kingston PR 0600																					
2,3,7,8 T4CDD	20	4	0	<	20	<	20	<	20				<	10		<	3				
Total T4CDD	20	4	0	<	20	<	20	<	20				<	10		<	3				
Total P5CDD	20	4	0	<	20	<	20	<	20				<	8		<	3				
Total H6CDD	30	4	0	<	19	<	20	<	20				<	20		<	4				
Total H7CDD	30	4	0	<	21	<	21	<	21				<	10		<	3				
Total O8CDD	30	4	0	<	30	<	30	<	30				<	10		<	9				
Total T4CDF	15	4	0	<	10	<	10	<	10				<	7		<	3				
Total P5CDF	15	4	0	<	13	<	13	<	13				<	7		<	3				
Total H6CDF	20	4	0	<	20	<	20	<	20				<	10		<	3				
Total H7CDF	30	4	0	<	23	<	23	<	23				<	20		<	6				
Total O8CDF	30	4	0	<	30	<	30	<	30				<	9		<	4				
Du Pont Canada Inc. – Kingston CO 0700																					
2,3,7,8 T4CDD	20	4	0	<	20	<	20	<	20				<	6		<	6		<	3	
Total T4CDD	20	4	0	<	20	<	20	<	20				<	6		<	6		<	3	
Total P5CDD	20	4	0	<	20	<	20	<	20				<	5		<	5		<	3	
Total H6CDD	30	4	0	<	19	<	20	<	20				<	4		<	3		<	3	
Total H7CDD	30	4	1	<	21	<	40	<	26				<	3		<	3		<	3	
Total O8CDD	30	4	0	<	30	<	30	<	30				<	10		<	8		<	9	
Total T4CDF	15	4	1	<	10		44	<	19				<	8		<	6		<	4	
Total P5CDF	15	4	0	<	13	<	13	<	13				<	5		<	4		<	3	
Total H6CDF	20	4	0	<	20	<	20	<	20				<	3		<	3		<	3	
Total H7CDF	30	4	0	<	23	<	23	<	23				<	4		<	3		<	4	
Total O8CDF	30	4	0	<	30	<	30	<	30				<	4		<	3		<	3	
Du Pont Canada Inc. – Kingston PR 1000																					
2,3,7,8 T4CDD	20	4	2	<	20	<	30	<	24				<	7		<	8		<	6	
Total T4CDD	20	4	4	<	30		390	<	154				<	7		<	8		<	6	
Total P5CDD	20	4	1	<	20		64	<	31				<	7			51		<	3	
Total H6CDD	30	4	1	<	19		99	<	41				<	3			47		<	3	
Total H7CDD	30	4	2	<	21		44	<	30				<	4			86			9	
Total O8CDD	30	4	4		41		91	<	69				<	16			210			34	
Total T4CDF	15	4	0	<	10	<	10	<	10				<	6		<	6		<	4	
Total P5CDF	15	4	0	<	13	<	13	<	13				<	4		<	13		<	6	
Total H6CDF	20	4	1	<	20		33	<	23				<	3		<	6		<	4	
Total H7CDF	30	4	2	<	23		35	<	28				<	3		<	5		<	3	
Total O8CDF	30	4	2	<	30	<	100	<	51				<	5		<	10		<	4	

OCM SECTOR TWELVE MONTH REPORT

DIOXIN AND FURAN RESULTS (ATG 24)
All results in pg/L

▨ – Shading indicates a Found parameter
N – Total number of results
D – Number of results greater than the RMDL

CONTROL POINT\ PARAMETER	PLANT MONITORING DATA									MINISTRY INSPECTION DATA								
	RMDL	N	D	MIN			MAX			AVG			RESULT1			RESULT2			RESULT3		
Du Pont Canada Inc. – Kingston CO 1100																					
2,3,7,8 T4CDD	20	4	0	<	20	<	20	<	20	<	7	<	7	<	3						
Total T4CDD	20	4	0	<	20	<	20	<	20	<	7	<	7	<	3						
Total P5CDD	20	4	0	<	20	<	20	<	20	<	3	<	6	<	3						
Total H6CDD	30	4	0	<	19	<	20	<	20	<	4	<	3	<	3						
Total H7CDD	30	4	0	<	21	<	21	<	21	<	3	<	3	<	3						
Total O8CDD	30	4	0	<	30	<	30	<	30	<	7	<	8	<	8						
Total T4CDF	15	4	0	<	10	<	10	<	10	<	5	<	5	<	3						
Total P5CDF	15	4	0	<	13	<	13	<	13	<	4	<	3	<	3						
Total H6CDF	20	4	0	<	20	<	20	<	20	<	3	<	3	<	4						
Total H7CDF	30	4	0	<	23	<	23	<	23	<	3	<	3	<	3						
Total O8CDF	30	4	0	<	30	<	30	<	30	<	5	<	3	<	3						
Du Pont Canada Inc. – Maitland PR 0300																					
2,3,7,8 T4CDD	20	2	0	<	20	<	20	<	20	<	10										
Total T4CDD	20	2	1	<	20		96	<	58	<	10	<	4								
Total P5CDD	20	2	0	<	20	<	20	<	20	<	20	<	10								
Total H6CDD	30	2	0	<	19	<	20	<	20	<	20	<	20								
Total H7CDD	30	2	0	<	21	<	21	<	21	<	20	<	9								
Total O8CDD	30	2	2	<	50		120	<	85	<	30		26								
Total T4CDF	15	2	0	<	10	<	10	<	10	<	10	<	3								
Total P5CDF	15	2	0	<	13	<	13	<	13	<	20	<	5								
Total H6CDF	20	2	0	<	20	<	20	<	20	<	20	<	8								
Total H7CDF	30	2	0	<	23	<	23	<	23	<	20	<	10								
Total O8CDF	30	2	0	<	30	<	30	<	30	<	30	<	5								
Du Pont Canada Inc. – Maitland CO 0400																					
2,3,7,8 T4CDD	20	4	1	<	20	<	35	<	24	<	20										
Total T4CDD	20	4	2	<	20		80	<	38	<	20	<	2								
Total P5CDD	20	4	1	<	20		36	<	24	<	20	<	5								
Total H6CDD	30	4	0	<	19	<	20	<	20	<	30	<	10								
Total H7CDD	30	4	0	<	21	<	21	<	21	<	30	<	7								
Total O8CDD	30	4	2	<	30		94	<	48	<	30	<	5								
Total T4CDF	15	4	0	<	10	<	15	<	11	<	10	<	5								
Total P5CDF	15	4	0	<	13	<	13	<	13	<	10	<	4								
Total H6CDF	20	4	0	<	20	<	20	<	20	<	20	<	5								
Total H7CDF	30	4	0	<	23	<	23	<	23	<	30	<	10								
Total O8CDF	30	4	4		71		260		126		36		13								
Du Pont Canada Inc. – Maitland CO 0500																					
2,3,7,8 T4CDD	20	4	0	<	20	<	20	<	20	<	10										
Total T4CDD	20	4	0	<	20	<	20	<	20	<	10		12								
Total P5CDD	20	4	0	<	20	<	20	<	20	<	20	<	3								
Total H6CDD	30	4	0	<	19	<	20	<	20	<	30	<	7								
Total H7CDD	30	4	0	<	21	<	21	<	21	<	30	<	7								
Total O8CDD	30	4	2	<	30		100	<	50	<	30		17								
Total T4CDF	15	4	0	<	10	<	10	<	10	<	10	<	1								
Total P5CDF	15	4	0	<	13	<	13	<	13	<	10	<	3								
Total H6CDF	20	4	0	<	20	<	20	<	20	<	20	<	8								
Total H7CDF	30	4	0	<	23	<	23	<	23	<	40	<	5								
Total O8CDF	30	4	0	<	30	<	30	<	30	<	40	<	4								

OCM SECTOR TWELVE MONTH REPORT

DIOXIN AND FURAN RESULTS (ATG 24)
All results in pg/L

▒ – Shading indicates a Found parameter
N – Total number of results
D – Number of results greater than the RMDL

CONTROL POINT\ PARAMETER	PLANT MONITORING DATA									MINISTRY INSPECTION DATA								
	RMDL	N	D	MIN			MAX			AVG			RESULT1			RESULT2			RESULT3
Du Pont Canada Inc. – Maitland CO 0700																			
2,3,7,8 T4CDD	20	2	0	<	20	<	20		<	20		<	20						
Total T4CDD	20	2	0	<	20	<	20		<	20		<	20		<	2			
Total P5CDD	20	2	0	<	20	<	20		<	20		<	20		<	3			
Total H6CDD	30	2	0	<	19	<	19		<	19		<	20		<	10			
Total H7CDD	30	2	0	<	21	<	28		<	25		<	20		<	7			
Total O8CDD	30	2	2		200		220			210			55			65			
Total T4CDF	15	2	0	<	10	<	10		<	10		<	10		<	2			
Total P5CDF	15	2	0	<	13	<	13		<	13		<	20		<	3			
Total H6CDF	20	2	0	<	20	<	20		<	20		<	20		<	6			
Total H7CDF	30	2	0	<	23	<	23		<	23		<	20		<	4			
Total O8CDF	30	2	2		48	<	50		<	49			17		<	3			
Du Pont Canada Inc. – Maitland IN 1000																			
2,3,7,8 T4CDD	20	4	0	<	20	<	20		<	20									
Total T4CDD	20	4	0	<	20	<	20		<	20									
Total P5CDD	20	4	0	<	20	<	20		<	20									
Total H6CDD	30	4	0	<	19	<	20		<	20									
Total H7CDD	30	4	0	<	21	<	21		<	21									
Total O8CDD	30	4	1	<	30		40		<	33									
Total T4CDF	15	4	0	<	10	<	10		<	10									
Total P5CDF	15	4	0	<	13	<	13		<	13									
Total H6CDF	20	4	0	<	20	<	20		<	20									
Total H7CDF	30	4	0	<	23	<	23		<	23									
Total O8CDF	30	4	0	<	30	<	30		<	30									
Du Pont Canada Inc. – Maitland CO 1100																			
2,3,7,8 T4CDD	20	4	1	<	20	<	25		<	21		<	20						
Total T4CDD	20	4	1	<	20		2600		<	665		<	20		<	3			
Total P5CDD	20	4	0	<	20	<	20		<	20		<	20		<	4			
Total H6CDD	30	4	0	<	19	<	20		<	20		<	30		<	7			
Total H7CDD	30	4	1	<	21		70		<	33		<	30		<	4			
Total O8CDD	30	4	1	<	30		300		<	98		<	20			23			
Total T4CDF	15	4	0	<	10	<	10		<	10		<	10		<	2			
Total P5CDF	15	4	0	<	13	<	13		<	13		<	10		<	3			
Total H6CDF	20	4	0	<	20	<	20		<	20		<	20		<	4			
Total H7CDF	30	4	0	<	23	<	23		<	23		<	30		<	10			
Total O8CDF	30	4	1	<	30		80		<	43		<	20			13			
Du Pont Canada Inc. – Whitby CO 0200																			
2,3,7,8 T4CDD	20	2	0	<	20	<	20		<	20					<	2			
Total T4CDD	20	2	0	<	20	<	20		<	20		<	2		<	2			
Total P5CDD	20	2	0	<	20	<	20		<	20		<	3		<	3			
Total H6CDD	30	2	0	<	19	<	19		<	19		<	5		<	9			
Total H7CDD	30	2	0	<	21	<	21		<	21		<	6		<	11			
Total O8CDD	30	2	0	<	30	<	30		<	30		<	4		<	5			
Total T4CDF	15	2	0	<	10	<	10		<	10		<	1		<	1			
Total P5CDF	15	2	0	<	13	<	13		<	13		<	3		<	4			
Total H6CDF	20	2	0	<	20	<	20		<	20		<	4		<	6			
Total H7CDF	30	2	0	<	23	<	23		<	23		<	5		<	13			
Total O8CDF	30	2	0	<	30	<	30		<	30		<	4		<	4			

OCM SECTOR TWELVE MONTH REPORT

DIOXIN AND FURAN RESULTS (ATG 24)
All results in pg/L

▒ – Shading indicates a Found parameter
N – Total number of results
D – Number of results greater than the RMDL

CONTROL POINT\ PARAMETER	PLANT MONITORING DATA									MINISTRY INSPECTION DATA		
	RMDL	N	D	MIN		MAX		AVG		RESULT1	RESULT2	RESULT3
Esso Chemical Canada – Sarnia IN 0100												
2,3,7,8 T4CDD	20	3	0	<	20	< 20		< 20				
Total T4CDD	20	3	0	<	20	< 20		< 20				
Total P5CDD	20	3	0	<	20	< 20		< 20				
Total H6CDD	30	3	0	<	19	< 20		< 20				
Total H7CDD	30	3	0	<	21	< 21		< 21				
Total O8CDD	30	3	1	<	30	110		< 57				
Total T4CDF	15	3	0	<	10	< 10		< 10				
Total P5CDF	15	3	0	<	13	< 13		< 13				
Total H6CDF	20	3	0	<	20	< 20		< 20				
Total H7CDF	30	3	0	<	23	< 23		< 23				
Total O8CDF	30	3	1	<	30	< 40		< 33				
Esso Chemical Canada – Sarnia PR 0200												
2,3,7,8 T4CDD	20	3	0	<	20	< 20		< 20				
Total T4CDD	20	3	0	<	20	< 20		< 20		< 9		
Total P5CDD	20	3	0	<	20	< 20		< 20		< 10		
Total H6CDD	30	2	0	<	19	< 20		< 20		< 30		
Total H7CDD	30	3	0	<	21	< 21		< 21		< 20		
Total O8CDD	30	2	1	<	30	< 40		< 35		< 20		
Total T4CDF	15	3	0	<	10	< 10		< 10		< 7		
Total P5CDF	15	3	0	<	13	< 13		< 13		< 10		
Total H6CDF	20	3	0	<	20	< 20		< 20		< 8		
Total H7CDF	30	3	0	<	23	< 23		< 23		< 30		
Total O8CDF	30	2	0	<	30	< 30		< 30		< 5		
Esso Chemical Canada – Sarnia CO 0300												
2,3,7,8 T4CDD	20	3	0	<	20	< 20		< 20				
Total T4CDD	20	2	0	<	20	< 20		< 20				
Total P5CDD	20	2	0	<	20	< 20		< 20				
Total H6CDD	30	2	0	<	20	< 20		< 20				
Total H7CDD	30	2	0	<	21	< 21		< 21				
Total O8CDD	30	2	0	<	30	< 30		< 30				
Total T4CDF	15	3	0	<	10	< 10		< 10				
Total P5CDF	15	3	0	<	13	< 13		< 13				
Total H6CDF	20	3	0	<	20	< 20		< 20				
Total H7CDF	30	3	0	<	23	< 23		< 23				
Total O8CDF	30	2	0	<	30	< 30		< 30				
Ethyl Canada Inc. – Corunna CO 0100												
2,3,7,8 T4CDD	20	4	0	<	11	< 11		< 11				
Total T4CDD	20	4	0	<	11	< 11		< 11		< 6		
Total P5CDD	20	4	0	<	19	< 19		< 19		< 6		
Total H6CDD	30	4	0	<	22	< 22		< 22		< 10		
Total H7CDD	30	4	0	<	17	< 17		< 17		< 9		
Total O8CDD	30	4	0	<	20	< 20		< 20		< 9		
Total T4CDF	15	4	0	<	8	< 8		< 8		< 5		
Total P5CDF	15	4	0	<	13	< 13		< 13		< 4		
Total H6CDF	20	4	0	<	15	< 15		< 15		< 4		
Total H7CDF	30	4	0	<	20	< 20		< 20		< 10		
Total O8CDF	30	4	0	<	22	< 22		< 22		< 8		

OCM SECTOR TWELVE MONTH REPORT

DIOXIN AND FURAN RESULTS (ATG 24)
All results in pg/L

▒ – Shading indicates a Found parameter
N – Total number of results
D – Number of results greater than the RMDL

CONTROL POINT\ PARAMETER	PLANT MONITORING DATA									MINISTRY INSPECTION DATA		
	RMDL	N	D	MIN		MAX		AVG		RESULT1	RESULT2	RESULT3
Ethyl Canada Inc. – Corunna PR 0200												
2,3,7,8 T4CDD	20	5	0	<	11	<	11	<	11			
Total T4CDD	20	5	0	<	11	<	11	<	11	< 5		
Total P5CDD	20	5	0	<	19	<	19	<	19	< 6		
Total H6CDD	30	5	0	<	22	<	22	<	22	< 10		
Total H7CDD	30	5	0	<	17	<	17	<	17	< 20		
Total O8CDD	30	5	1	<	20		67	<	29	< 30		
Total T4CDF	15	5	0	<	8	<	8	<	8	< 3		
Total P5CDF	15	5	0	<	13	<	13	<	13	< 5		
Total H6CDF	20	5	0	<	15	<	15	<	15	< 7		
Total H7CDF	30	5	0	<	20	<	20	<	20	< 6		
Total O8CDF	30	5	0	<	22	<	25	<	23	< 10		
Ethyl Canada Inc. – Corunna PR 0300												
2,3,7,8 T4CDD	20	4	0	<	11	<	11	<	11			
Total T4CDD	20	4	0	<	11	<	11	<	11	< 5		
Total P5CDD	20	4	0	<	19	<	19	<	19	< 9		
Total H6CDD	30	4	0	<	22	<	22	<	22	< 10		
Total H7CDD	30	4	0	<	17	<	17	<	17	< 20		
Total O8CDD	30	4	0	<	20	<	20	<	20	20		
Total T4CDF	15	4	0	<	8	<	8	<	8	< 6		
Total P5CDF	15	4	0	<	13	<	13	<	13	< 7		
Total H6CDF	20	4	0	<	15	<	15	<	15	< 10		
Total H7CDF	30	4	0	<	20	<	20	<	20	< 8		
Total O8CDF	30	4	0	<	22	<	22	<	22	< 10		
Ethyl Canada Inc. – Corunna IN 0800												
2,3,7,8 T4CDD	20	2	0	<	11	<	11	<	11			
Total T4CDD	20	2	0	<	11	<	11	<	11			
Total P5CDD	20	2	0	<	19	<	19	<	19			
Total H6CDD	30	2	0	<	22	<	22	<	22			
Total H7CDD	30	2	0	<	17	<	17	<	17			
Total O8CDD	30	2	0	<	20	<	20	<	20			
Total T4CDF	15	2	0	<	8	<	8	<	8			
Total P5CDF	15	2	0	<	13	<	13	<	13			
Total H6CDF	20	2	0	<	15	<	15	<	15			
Total H7CDF	30	2	0	<	20	<	20	<	20			
Total O8CDF	30	2	0	<	22	<	22	<	22			
GE Plastics Canada Ltd. – Cobourg CO 0100												
2,3,7,8 T4CDD	20	4	0	<	2	<	2	<	2			
Total T4CDD	20	4	0	<	11	<	11	<	11			
Total P5CDD	20	4	0	<	19	<	19	<	19			
Total H6CDD	30	4	0	<	22	<	22	<	22			
Total H7CDD	30	4	0	<	17	<	17	<	17			
Total O8CDD	30	4	0	<	20	<	20	<	20			
Total T4CDF	15	4	0	<	8	<	8	<	8			
Total P5CDF	15	4	0	<	13	<	13	<	13			
Total H6CDF	20	4	0	<	15	<	15	<	15			
Total H7CDF	30	4	0	<	20	<	20	<	20			
Total O8CDF	30	4	0	<	22	<	22	<	22			

OCM SECTOR TWELVE MONTH REPORT

DIOXIN AND FURAN RESULTS (ATG 24)
All results in pg/L

▒ – Shading indicates a Found parameter
N – Total number of results
D – Number of results greater than the RMDL

CONTROL POINT\ PARAMETER	PLANT MONITORING DATA						MINISTRY INSPECTION DATA		
	RMDL	N	D	MIN	MAX	AVG	RESULT1	RESULT2	RESULT3
GE Plastics Canada Ltd. – Cobourg IN 0600									
2,3,7,8 T4CDD	20	1	0	< 2	< 2	< 2			
Total T4CDD	20	1	0	< 11	< 11	< 11			
Total P5CDD	20	1	0	< 19	< 19	< 19			
Total H6CDD	30	1	0	< 22	< 22	< 22			
Total H7CDD	30	1	0	< 17	< 17	< 17			
Total O8CDD	30	1	0	< 20	< 20	< 20			
Total T4CDF	15	1	0	< 8	< 8	< 8			
Total P5CDF	15	1	0	< 13	< 13	< 13			
Total H6CDF	20	1	0	< 15	< 15	< 15			
Total H7CDF	30	1	0	< 20	< 20	< 20			
Total O8CDF	30	1	0	< 22	< 22	< 22			
Guardsman Products Ltd. – Cornwall OT 0100 monitoring for ATG 24 not required									
2,3,7,8 T4CDD	20	–	–	– –	– –	– –			
Total T4CDD	20	–	–	– –	– –	– –	< 10		
Total P5CDD	20	–	–	– –	– –	– –	< 4		
Total H6CDD	30	–	–	– –	– –	– –	< 10		
Total H7CDD	30	–	–	– –	– –	– –	< 7		
Total O8CDD	30	–	–	– –	– –	– –	10		
Total T4CDF	15	–	–	– –	– –	– –	< 9		
Total P5CDF	15	–	–	– –	– –	– –	< 3		
Total H6CDF	20	–	–	– –	– –	– –	< 6		
Total H7CDF	30	–	–	– –	– –	– –	< 8		
Total O8CDF	30	–	–	– –	– –	– –	< 7		
Morbern Inc. – Cornwall CO 0100 monitoring for ATG 24 not required									
2,3,7,8 T4CDD	20	–	–	– –	– –	– –			
Total T4CDD	20	–	–	– –	– –	– –			
Total P5CDD	20	–	–	– –	– –	– –	< 7		
Total H6CDD	30	–	–	– –	– –	– –	< 5		
Total H7CDD	30	–	–	– –	– –	– –	< 5		
Total O8CDD	30	–	–	– –	– –	– –	< 3		
Total T4CDF	15	–	–	– –	– –	– –			
Total P5CDF	15	–	–	– –	– –	– –	< 4		
Total H6CDF	20	–	–	– –	– –	– –	< 4		
Total H7CDF	30	–	–	– –	– –	– –	< 4		
Total O8CDF	30	–	–	– –	– –	– –	< 3		
Novacor Chemicals Ltd. – Mooretown CO 0100									
2,3,7,8 T4CDD	20	2	0	< 11	< 11	< 11			
Total T4CDD	20	2	0	< 11	< 11	< 11			
Total P5CDD	20	2	0	< 19	< 19	< 19			
Total H6CDD	30	2	0	< 22	< 22	< 22			
Total H7CDD	30	2	0	< 17	< 17	< 17			
Total O8CDD	30	2	0	< 20	< 20	< 20			
Total T4CDF	15	2	0	< 8	< 8	< 8			
Total P5CDF	15	2	0	< 13	< 13	< 13			
Total H6CDF	20	2	0	< 15	< 15	< 15			
Total H7CDF	30	2	0	< 20	< 20	< 20			
Total O8CDF	30	2	0	< 22	< 22	< 22			

OCM SECTOR TWELVE MONTH REPORT

DIOXIN AND FURAN RESULTS (ATG 24)
All results in pg/L

▒ – Shading indicates a Found parameter
N – Total number of results
D – Number of results greater than the RMDL

CONTROL POINT\ PARAMETER	PLANT MONITORING DATA						MINISTRY INSPECTION DATA		
	RMDL	N	D	MIN	MAX	AVG	RESULT1	RESULT2	RESULT3
Novacor Chemicals Ltd. – Mooretown IN 0600									
2,3,7,8 T4CDD	20	2	0	< 11	< 11	< 11			
Total T4CDD	20	2	0	< 11	< 11	< 11			
Total P5CDD	20	2	0	< 19	< 19	< 19			
Total H6CDD	30	2	0	< 22	< 22	< 22			
Total H7CDD	30	2	0	< 17	< 17	< 17			
Total O8CDD	30	2	0	< 20	< 20	< 20			
Total T4CDF	15	2	0	< 8	< 8	< 8			
Total P5CDF	15	2	0	< 13	< 13	< 13			
Total H6CDF	20	2	0	< 15	< 15	< 15			
Total H7CDF	30	2	0	< 20	< 20	< 20			
Total O8CDF	30	2	0	< 22	< 22	< 22			
Polysar Ltd. – Sarnia CO 0200									
2,3,7,8 T4CDD	20	5	0	< 11	< 11	< 11			
Total T4CDD	20	5	0	< 11	< 11	< 11	< 20		
Total P5CDD	20	5	0	< 19	< 19	< 19	< 10		
Total H6CDD	30	5	0	< 22	< 22	< 22	< 30		
Total H7CDD	30	5	0	< 17	< 17	< 17	< 20		
Total O8CDD	30	5	0	< 20	< 20	< 20	< 20		
Total T4CDF	15	5	0	< 8	< 8	< 8	< 7		
Total P5CDF	15	5	0	< 13	< 13	< 13	< 40		
Total H6CDF	20	5	0	< 15	< 15	< 15	< 20		
Total H7CDF	30	5	0	< 20	< 20	< 20	< 20		
Total O8CDF	30	5	0	< 22	< 22	< 22	< 6		
Polysar Ltd. – Sarnia PR 0300									
2,3,7,8 T4CDD	20	5	0	< 11	< 11	< 11			
Total T4CDD	20	5	0	< 11	< 11	< 11	< 10		
Total P5CDD	20	5	0	< 19	< 19	< 19	< 20		
Total H6CDD	30	5	0	< 22	< 22	< 22	< 60		
Total H7CDD	30	5	0	< 17	< 17	< 17	< 50		
Total O8CDD	30	5	0	< 20	< 20	< 20	< 30		
Total T4CDF	15	5	0	< 8	< 8	< 8	< 10		
Total P5CDF	15	5	0	< 13	< 13	< 13	< 10		
Total H6CDF	20	5	0	< 15	< 15	< 15	< 20		
Total H7CDF	30	5	0	< 20	< 20	< 20	< 30		
Total O8CDF	30	5	0	< 22	< 22	< 22	< 10		
Polysar Ltd. – Sarnia CO 0400									
2,3,7,8 T4CDD	20	5	0	< 11	< 11	< 11			
Total T4CDD	20	5	0	< 11	< 11	< 11			
Total P5CDD	20	5	0	< 19	< 19	< 19			
Total H6CDD	30	5	0	< 22	< 22	< 22			
Total H7CDD	30	5	0	< 17	< 17	< 17			
Total O8CDD	30	5	0	< 20	< 20	< 20			
Total T4CDF	15	5	0	< 8	< 8	< 8			
Total P5CDF	15	5	0	< 13	< 13	< 13			
Total H6CDF	20	5	0	< 15	< 15	< 15			
Total H7CDF	30	5	0	< 20	< 20	< 20			
Total O8CDF	30	5	0	< 22	< 22	< 22			

OCM SECTOR TWELVE MONTH REPORT

DIOXIN AND FURAN RESULTS (ATG 24)
All results in pg/L

▒ – Shading indicates a Found parameter
N – Total number of results
D – Number of results greater than the RMDL

CONTROL POINT\ PARAMETER	PLANT MONITORING DATA									MINISTRY INSPECTION DATA		
	RMDL	N	D	MIN		MAX		AVG		RESULT1	RESULT2	RESULT3
Polysar Ltd. – Sarnia CO 0500												
2,3,7,8 T4CDD	20	4	0	<	11	<	11	<	11	< 18		
Total T4CDD	20	4	0	<	11	<	11	<	11	< 18		
Total P5CDD	20	4	0	<	19	<	19	<	19	< 10		
Total H6CDD	30	4	0	<	22	<	22	<	22	< 30		
Total H7CDD	30	4	0	<	17	<	17	<	17	< 12		
Total O8CDD	30	4	0	<	20	<	20	<	20	< 8		
Total T4CDF	15	4	0	<	8	<	8	<	8	< 9		
Total P5CDF	15	4	0	<	13	<	13	<	13	< 8		
Total H6CDF	20	4	0	<	15	<	15	<	15	< 18		
Total H7CDF	30	4	0	<	20	<	20	<	20	< 16		
Total O8CDF	30	4	0	<	22	<	22	<	22	< 9		
Polysar Ltd. – Sarnia PR 0900												
2,3,7,8 T4CDD	20	5	0	<	11	<	11	<	11			
Total T4CDD	20	5	0	<	11	<	11	<	11	< 7		
Total P5CDD	20	5	0	<	19	<	19	<	19	< 10		
Total H6CDD	30	5	0	<	22	<	22	<	22	< 10		
Total H7CDD	30	5	0	<	17	<	17	<	17	71		
Total O8CDD	30	5	0	<	20	<	20	<	20	100		
Total T4CDF	15	5	0	<	8	<	8	<	8	< 8		
Total P5CDF	15	5	0	<	13	<	13	<	13	< 7		
Total H6CDF	20	5	0	<	15	<	15	<	15	< 10		
Total H7CDF	30	5	0	<	20	<	20	<	20	< 30		
Total O8CDF	30	5	0	<	22	<	22	<	22	< 20		
Polysar Ltd. – Sarnia CO 1100												
2,3,7,8 T4CDD	20	4	0	<	11	<	11	<	11	< 27		
Total T4CDD	20	4	0	<	11	<	11	<	11	< 27		
Total P5CDD	20	4	0	<	19	<	19	<	19	< 16		
Total H6CDD	30	4	0	<	22	<	22	<	22	< 24		
Total H7CDD	30	4	0	<	17	<	17	<	17	< 11		
Total O8CDD	30	4	0	<	20	<	20	<	20	50		
Total T4CDF	15	4	0	<	8	<	8	<	8	< 15		
Total P5CDF	15	4	0	<	13	<	13	<	13	< 13		
Total H6CDF	20	4	0	<	15	<	15	<	15	< 14		
Total H7CDF	30	4	0	<	20	<	20	<	20	< 13		
Total O8CDF	30	4	0	<	22	<	22	<	22	< 7		
Polysar Ltd. – Sarnia BA 1700												
2,3,7,8 T4CDD	20	4	0	<	11	<	11	<	11			
Total T4CDD	20	4	0	<	11	<	11	<	11	< 10		
Total P5CDD	20	4	0	<	19	<	19	<	19	< 10		
Total H6CDD	30	4	0	<	22	<	22	<	22	< 10		
Total H7CDD	30	4	0	<	17	<	17	<	17	< 10		
Total O8CDD	30	4	0	<	20	<	20	<	20	< 10		
Total T4CDF	15	4	0	<	8	<	8	<	8	< 7		
Total P5CDF	15	4	0	<	13	<	13	<	13	< 9		
Total H6CDF	20	4	0	<	15	<	15	<	15	< 8		
Total H7CDF	30	4	0	<	20	<	20	<	20	< 10		
Total O8CDF	30	4	0	<	22	<	22	<	22	< 20		

OCM SECTOR TWELVE MONTH REPORT

DIOXIN AND FURAN RESULTS (ATG 24)
All results in pg/L

▒ – Shading indicates a Found parameter
N – Total number of results
D – Number of results greater than the RMDL

CONTROL POINT\ PARAMETER	PLANT MONITORING DATA									MINISTRY INSPECTION DATA		
	RMDL	N	D	MIN		MAX		AVG		RESULT1	RESULT2	RESULT3
Polysar Ltd. – Sarnia PR 1800												
2,3,7,8 T4CDD	20	3	0	<	11	< 11		< 11		< 23		
Total T4CDD	20	4	0	<	11	< 11		< 11		< 23		
Total P5CDD	20	4	0	<	19	< 19		< 19		< 26		
Total H6CDD	30	4	0	<	22	< 22		< 22		< 34		
Total H7CDD	30	4	0	<	17	< 17		< 17		< 41		
Total O8CDD	30	4	0	<	20	< 20		< 20		< 100		
Total T4CDF	15	4	0	<	8	< 8		< 8		< 23		
Total P5CDF	15	4	0	<	13	< 13		< 13		< 19		
Total H6CDF	20	4	0	<	15	< 15		< 15		< 31		
Total H7CDF	30	4	0	<	20	< 20		< 20		< 49		
Total O8CDF	30	4	0	<	22	< 22		< 22		< 93		
Polysar Ltd. – Sarnia EM 2000												
2,3,7,8 T4CDD	20	1	0	<	11	< 11		< 11				
Total T4CDD	20	1	0	<	11	< 11		< 11				
Total P5CDD	20	1	0	<	19	< 19		< 19				
Total H6CDD	30	1	0	<	22	< 22		< 22				
Total H7CDD	30	1	0	<	17	< 17		< 17				
Total O8CDD	30	1	0	<	20	< 20		< 20				
Total T4CDF	15	1	0	<	8	< 8		< 8				
Total P5CDF	15	1	0	<	13	< 13		< 13				
Total H6CDF	20	1	0	<	15	< 15		< 15				
Total H7CDF	30	1	0	<	20	< 20		< 20				
Total O8CDF	30	1	0	<	22	< 22		< 22				
Polysar Ltd. – Sarnia IN 2400												
2,3,7,8 T4CDD	20	8	0	<	11	< 11		< 11				
Total T4CDD	20	10	0	<	11	< 11		< 11				
Total P5CDD	20	10	0	<	19	< 19		< 19				
Total H6CDD	30	10	0	<	22	< 22		< 22				
Total H7CDD	30	10	0	<	17	< 17		< 17				
Total O8CDD	30	10	0	<	20	< 20		< 20				
Total T4CDF	15	10	0	<	8	< 8		< 8				
Total P5CDF	15	10	0	<	13	< 13		< 13				
Total H6CDF	20	10	0	<	15	< 15		< 15				
Total H7CDF	30	10	0	<	20	< 20		< 20				
Total O8CDF	30	10	0	<	22	< 22		< 22				
Rohm and Haas Canada Inc. – Morrisburg CO 0100												
2,3,7,8 T4CDD	20	4	0	<	11	< 11		< 11		< 3		
Total T4CDD	20	4	0	<	11	< 11		< 11		160		
Total P5CDD	20	4	0	<	19	< 19		< 19		< 4		
Total H6CDD	30	4	0	<	22	< 22		< 22		< 7		
Total H7CDD	30	4	0	<	17	< 17		< 17		< 30		
Total O8CDD	30	4	0	<	20	< 20		< 20		27		
Total T4CDF	15	4	0	<	8	< 8		< 8		< 2		
Total P5CDF	15	4	0	<	13	< 13		< 13		< 3		
Total H6CDF	20	4	0	<	15	< 15		< 15		< 5		
Total H7CDF	30	4	0	<	20	< 20		< 20		< 8		
Total O8CDF	30	4	0	<	22	< 22		< 22		< 5		

OCM SECTOR TWELVE MONTH REPORT

DIOXIN AND FURAN RESULTS (ATG 24)
All results in pg/L

▒ – Shading indicates a Found parameter
N – Total number of results
D – Number of results greater than the RMDL

CONTROL POINT\	PLANT MONITORING DATA									MINISTRY INSPECTION DATA		
PARAMETER	RMDL	N	D	MIN		MAX		AVG		RESULT1	RESULT2	RESULT3
Rohm and Haas Canada Inc. – Morrisburg PR 0200												
2,3,7,8 T4CDD	20	4	0	<	11	<	11	<	11	< 10		
Total T4CDD	20	4	0	<	11	<	11	<	11	< 10		
Total P5CDD	20	4	0	<	19	<	19	<	19	< 5		
Total H6CDD	30	4	0	<	22	<	22	<	22	< 10		
Total H7CDD	30	4	0	<	17	<	17	<	17	< 9		
Total O8CDD	30	4	0	<	20	<	20	<	20	39		
Total T4CDF	15	4	0	<	8	<	8	<	8	< 2		
Total P5CDF	15	4	0	<	13	<	13	<	13	< 3		
Total H6CDF	20	4	0	<	15	<	15	<	15	< 7		
Total H7CDF	30	4	0	<	20	<	20	<	20	< 10		
Total O8CDF	30	4	0	<	22	<	22	<	22	< 10		
Stepan Canada Inc. – Longford Mills CO 0100												
2,3,7,8 T4CDD	20	4	0	<	20	<	20	<	20			
Total T4CDD	20	4	1	<	20	<	50	<	28	< 30		
Total P5CDD	20	4	1	<	20	<	300	<	90	< 20		
Total H6CDD	30	4	1	<	30	<	300	<	98	< 20		
Total H7CDD	30	4	1	<	30	<	300	<	98	< 20		
Total O8CDD	30	4	1	<	3	<	100	<	41	< 30		
Total T4CDF	15	4	1	<	15	<	50	<	24	< 30		
Total P5CDF	15	4	1	<	15	<	300	<	86	< 10		
Total H6CDF	20	4	1	<	20	<	300	<	90	< 10		
Total H7CDF	30	4	1	<	30	<	300	<	98	< 20		
Total O8CDF	30	4	1	<	30	<	100	<	48	< 30		
Stepan Canada Inc. – Longford Mills PR 0200												
2,3,7,8 T4CDD	20	4	0	<	20	<	20	<	20		< 3	
Total T4CDD	20	4	1	<	20	<	50	<	28	< 5	< 3	
Total P5CDD	20	4	1	<	20	<	300	<	90	< 7	< 18	
Total H6CDD	30	4	1	<	30	<	300	<	98	< 9	< 35	
Total H7CDD	30	4	1	<	30	<	300	<	98	< 20	< 5	
Total O8CDD	30	4	1	<	30	<	100	<	48	< 20		
Total T4CDF	15	4	1	<	15	<	50	<	24	< 4	< 3	
Total P5CDF	15	4	1	<	15	<	300	<	86	< 5	< 3	
Total H6CDF	20	4	1	<	20	<	300	<	90	< 7	< 7	
Total H7CDF	30	4	1	<	30	<	300	<	98	< 7	< 30	
Total O8CDF	30	4	1	<	30	<	100	<	48	< 10		
Stepan Canada Inc. – Longford Mills IN 0600												
2,3,7,8 T4CDD	20	4	0	<	20	<	20	<	20			
Total T4CDD	20	4	1	<	20	<	50	<	28			
Total P5CDD	20	4	1	<	20	<	300	<	90			
Total H6CDD	30	4	1	<	30	<	300	<	98			
Total H7CDD	30	4	1	<	30	<	300	<	98			
Total O8CDD	30	4	1	<	30	<	100	<	48			
Total T4CDF	15	4	1	<	15	<	50	<	24			
Total P5CDF	15	4	1	<	15	<	300	<	86			
Total H6CDF	20	4	1	<	20	<	300	<	90			
Total H7CDF	30	4	1	<	30	<	300	<	98			
Total O8CDF	30	4	1	<	30	<	100	<	48			

OCM SECTOR TWELVE MONTH REPORT

DIOXIN AND FURAN RESULTS (ATG 24)
All results in pg/L

▒ – Shading indicates a Found parameter
N – Total number of results
D – Number of results greater than the RMDL

CONTROL POINT\ PARAMETER	PLANT MONITORING DATA									MINISTRY INSPECTION DATA								
	RMDL	N	D	MIN			MAX			AVG			RESULT1			RESULT2			RESULT3		
Uniroyal Chemical Ltd. – Elmira CO 0600																					
2,3,7,8 T4CDD	20	4	0	<	11	<	11	<	11	<	10				<	1					
Total T4CDD	20	4	0	<	11	<	11	<	11	<	10				<	1					
Total P5CDD	20	4	0	<	19	<	19	<	19	<	10	<	10	<	4						
Total H6CDD	30	4	0	<	17	<	22	<	21	<	30	<	9	<	5						
Total H7CDD	30	4	0	<	17	<	17	<	17	<	30	<	7	<	8						
Total O8CDD	30	4	0	<	20	<	20	<	20	<	40	<	6	<	3						
Total T4CDF	15	4	0	<	8	<	8	<	8	<	8			<	1						
Total P5CDF	15	4	0	<	13	<	13	<	13	<	10	<	7	<	3						
Total H6CDF	20	4	0	<	15	<	15	<	15	<	20	<	7	<	5						
Total H7CDF	30	4	0	<	20	<	20	<	20	<	30	<	7	<	5						
Total O8CDF	30	4	0	<	22	<	22	<	22	<	50	<	4	<	8						
Uniroyal Chemical Ltd. – Elmira CO 0800																					
2,3,7,8 T4CDD	20	11	0	<	11	<	11	<	11	<	90	<	6								
Total T4CDD	20	12	0	<	11	<	11	<	11	<	90	<	6								
Total P5CDD	20	12	0	<	19	<	19	<	19	<	90	<	3								
Total H6CDD	30	12	0	<	17	<	22	<	22	<	100		12								
Total H7CDD	30	12	0	<	17	<	27	<	18	<	100		25								
Total O8CDD	30	12	1	<	20		76	<	25	<	90		9								
Total T4CDF	15	12	0	<	8	<	8	<	8	<	80	<	5								
Total P5CDF	15	12	0	<	13	<	13	<	13	<	60	<	4								
Total H6CDF	20	12	0	<	15	<	15	<	15	<	100	<	4								
Total H7CDF	30	12	0	<	20	<	20	<	20	<	100	<	3								
Total O8CDF	30	12	1	<	22		32	<	23	<	80	<	4								
Uniroyal Chemical Ltd. – Elmira CO 0900																					
2,3,7,8 T4CDD	20	4	2	<	11	<	200	<	79				10			28					
Total T4CDD	20	4	2	<	11	<	200	<	96		6		10			35					
Total P5CDD	20	4	1	<	19	<	300	<	89	<	7		3	<	3						
Total H6CDD	30	4	2	<	22		180	<	81	<	5	<	3	<	5						
Total H7CDD	30	4	3	<	17		420	<	159		32		27		18						
Total O8CDD	30	4	3	<	20		230	<	133		150		440		71						
Total T4CDF	15	4	2	<	8	<	300	<	134		11		23		71						
Total P5CDF	15	4	2	<	13	<	300	<	90	<	5	<	2		11						
Total H6CDF	20	4	3	<	15	<	200	<	108		48	<	6	<	3						
Total H7CDF	30	4	4		110		1500		475		1100		60		108						
Total O8CDF	30	4	4		71		1300		450		1700		96		63						
Uniroyal Chemical Ltd. – Elmira IN 1000																					
2,3,7,8 T4CDD	20	2	0	<	11	<	11	<	11												
Total T4CDD	20	2	0	<	11	<	11	<	11												
Total P5CDD	20	2	0	<	19	<	19	<	19												
Total H6CDD	30	2	0	<	22	<	22	<	22												
Total H7CDD	30	2	0	<	17	<	17	<	17												
Total O8CDD	30	2	0	<	20	<	20	<	20												
Total T4CDF	15	2	0	<	8	<	8	<	8												
Total P5CDF	15	2	0	<	13	<	13	<	13												
Total H6CDF	20	2	0	<	15	<	15	<	15												
Total H7CDF	30	2	0	<	20	<	20	<	20												
Total O8CDF	30	2	0	<	22	<	22	<	22												

OCM SECTOR TWELVE MONTH REPORT

DIOXIN AND FURAN RESULTS (ATG 24)
All results in pg/L

▒ – Shading indicates a Found parameter
N – Total number of results
D – Number of results greater than the RMDL

CONTROL POINT\ PARAMETER	PLANT MONITORING DATA									MINISTRY INSPECTION DATA								
	RMDL	N	D	MIN			MAX			AVG			RESULT1			RESULT2		RESULT3
Uniroyal Chemical Ltd. – Elmira CO 1100																		
2,3,7,8 T4CDD	20	5	0	<	11		<	11		<	11		<	20		<	4	
Total T4CDD	20	5	0	<	11		<	11		<	11		<	20			14	
Total P5CDD	20	5	0	<	19		<	19		<	19		<	20		<	3	
Total H6CDD	30	5	0	<	22		<	22		<	22		<	40		<	3	
Total H7CDD	30	5	0	<	17		<	17		<	17		<	50			8	
Total O8CDD	30	5	0	<	20		<	20		<	20		<	80			15	
Total T4CDF	15	5	0	<	8		<	8		<	8		<	20		<	3	
Total P5CDF	15	5	0	<	13		<	13		<	13		<	10		<	3	
Total H6CDF	20	5	0	<	15		<	15		<	15		<	30		<	3	
Total H7CDF	30	5	0	<	20		<	20		<	20		<	40		<	3	
Total O8CDF	30	5	0	<	22		<	22		<	22		<	60		<	3	

THIS PAGE HAS BEEN LEFT BLANK INTENTIONALLY

TD
423
.T87
T84
1992

Twelve-month monitoring data report : organic chemical manufacturing sector / Tuszynski, T. M.

22454